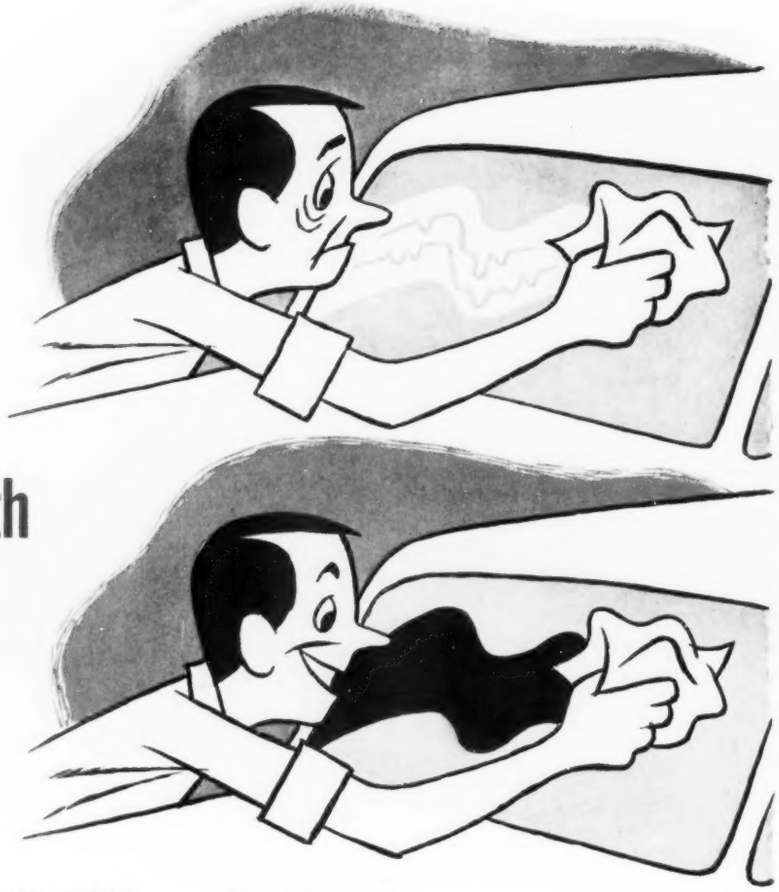
PULP & PAPER

THE PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY

ALSO IN THIS ISSUE: REPORTS ON CONFERENCE AT APPLETON

the difference is Better Absorbency, Rewetting Properties with CYNOL* 751 Rewetting Agent



IT HELPS SOAK UP WATER . . . STEP UP SALES

CYNOL 751 imparts high absorbency and rewetting properties to finished papers, both wet-strength and non-wet-strength grades. It gives you a potent selling advantage, particularly in window wiping tissues, saturating paper, toweling and napkin papers, and other papers requiring these characteristics.

IT'S EFFICIENT, TOO

Developed for surface application to paper, CYNOL 751 is applied by spray or tub. It is readily soluble in water, therefore can be diluted to any desired concentration. It has good storage stability and is non-irritating.

HOW ABOUT A TRIAL?

A Cyanamid Technical Service Man will be glad to arrange a mill trial to demonstrate the properties of this new rewetting agent.

Cyanamid Paper Chemicals: ACCOBRITE® Rosin Size • ACCOCEL® Dispersants AEROSIZE® Sizing Emulsions • AEROSOL® Surface Active Agents • ALWAX® and WAXINE® Wax Sizes • AZITE® 900 Liquefier • CALMICRO® Calcium Carbonate CYFOR® Rosin Sizes • CYNOL® Rewetting and Softening Agents • CYRON® Size • PAREZ® Wet Strength Resins • Rosin Size—Liquid and Dry • Aluminum Sulfate Sodium Phospho Aluminate • Clays • Defoamers and other Specialty Products • Acids Alkalis • Other Heavy Chemicals

*Trade-mark

Sales Offices: Boston • Charlotte • Chicago • Cleveland • Kalamazoo • Los Angeles Mobile • New York • Philadelphia • Seattle

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PAPER CHEMICALS DEPARTMENT PP-7

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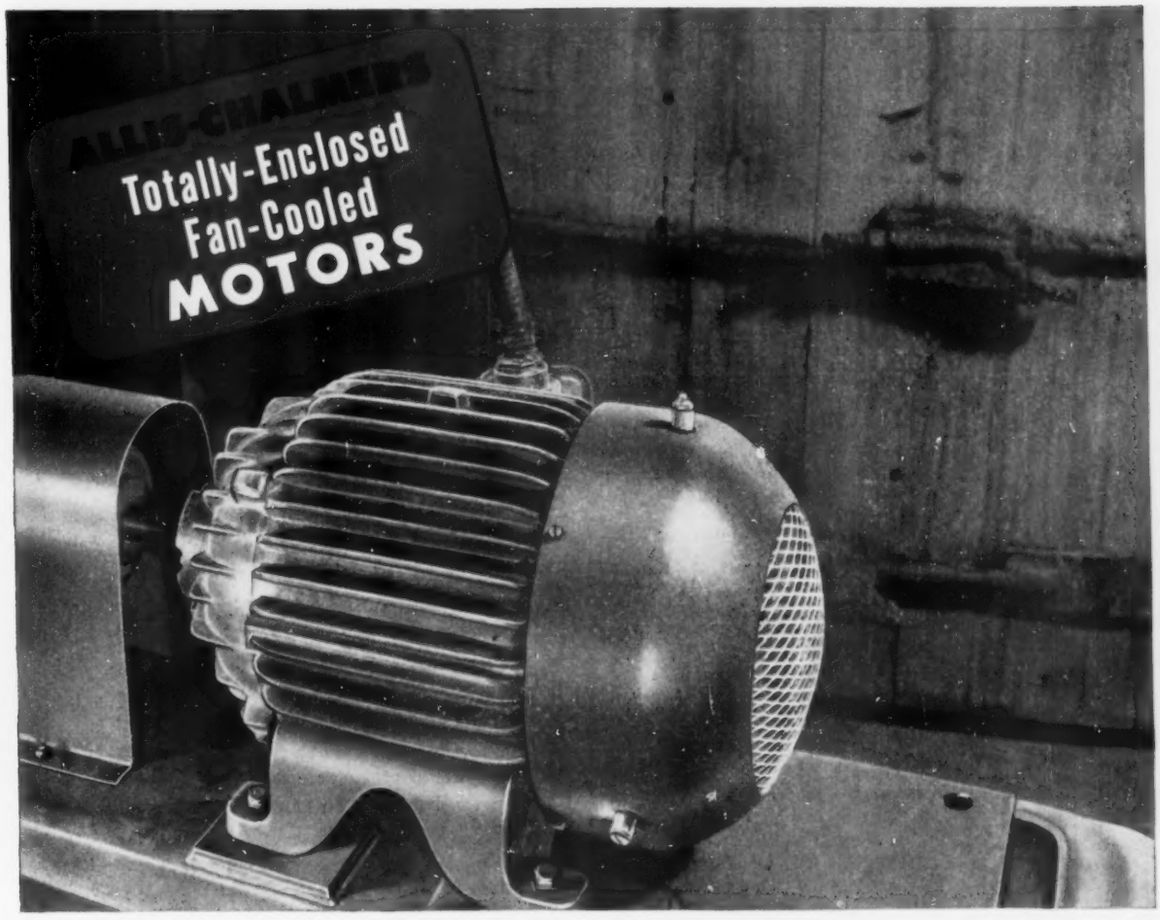
In Canada: North American Cyanamid Limited, Toronto and Montreal



Get These 3 Low Maintenance Features

1 Wide Open Air Flow

No enclosed external air passages to clog. Easy to clean with cloth, brush, air hose or vacuum. Simply remove fan cover and whole radiating surface is exposed for inspection and cleaning.

2 Cast Iron Construction

Frame, conduit box and fan cover of cast iron resist corrosion. Fan is non-sparking, corrosion-resistant material. Well suited to outdoor operation.

Texrope and *Vari-Pitch* are Allis-Chalmers trademarks.

3 Pre-lubricated Bearings

Ball bearings are double-shielded type, pre-lubricated at the factory. Periodic lubrication is not required under normal operating conditions, but provision is made for in-service lubrication if necessary.

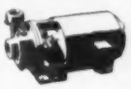
GET COMPLETE INFORMATION on Allis-Chalmers motors for indoor and outdoor service — complete with Allis-Chalmers coordinated control — from your nearby A-C Authorized Distributor or District Office, or write for Bulletins 51B7286 and 51B7149. Allis-Chalmers, Milwaukee 1, Wisconsin.

Sold . . .
Applied . . .
Serviced . . .

by Allis-Chalmers Authorized Distributors, Certified Service Shops and Sales Offices throughout the country.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

TEXROPE V-belts in all sizes and sections, standard and *Vari-Pitch* sheaves, speed changers.

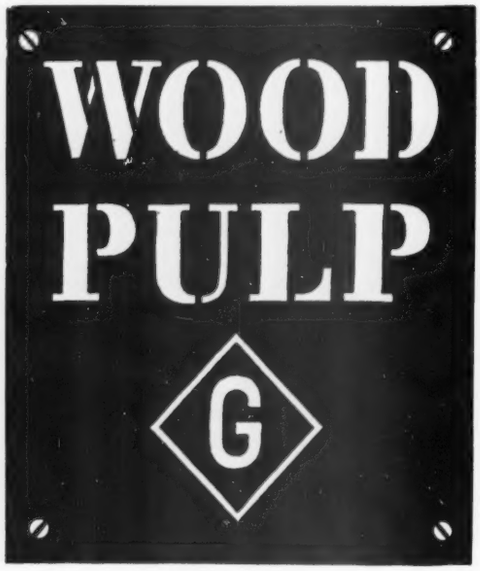


PUMPS — Integral types from ¾ in. to 72 in. discharge and up.

ALLIS-CHALMERS

A-4028

Established 1886



"Hitch your wagon to a star."
EMERSON

Despite its prodigious growth and its inspiring progress, the Pulp and Paper Industry has never been content with what has been . . . or even with what is.

The Industry sets its sights and standards higher and higher, always improving and perfecting. New, ingenious and better products of greater use and value are constantly being made available for man's ever-increasing needs.

★

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— INCORPORATED —
100 PARK AVENUE • NEW YORK 17, N. Y.
EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

PULP & PAPER

Production and Management Magazine of the Industry

July 1953
Vol. 27—No. 7

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Publication Office

Emmett Street, Bristol, Connecticut

Office of Editor

1791 Howard St., Chicago 26, Ill. ..... ROgers Park 4-3420

Advertising and Production Office

370 Lexington Ave., New York 17, N.Y. ... MUrray Hill 3-9294

71 Columbia St., Seattle 4, Wash. ..... MAin 1626
Royal Bank Bldg., Vancouver, B.C., Canada ..... MArine 7287
3518 Dante St., New Orleans 18, La. ..... AMherst 2762
Others—534 SW 3rd Ave., Portland 4, Ore. (BEacon 6348); 121 2nd St., San Francisco 5, Cal. (GA 1-5887); 815 Witmer St., Los Angeles 17, Cal. (DUnkirk 9-1112).

SUBSCRIPTION RATES (for 12 monthly issues and WORLD REVIEW NUMBER, each year): United States, Canada, Mexico and other Pan American Union nations—one year, $3.00; two years, $5.00. Other countries—one year, $4.00; two years, $7.00. CHANGE OF ADDRESS: Please send notice of change of address as early as possible, and include both old and new addresses, plus zone no. at new address.

ADVERTISING: All copy, plates, instructions and insertions orders should be sent to New York office.

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PULP & PAPER circulates all over the world—throughout the United States, Canada, Mexico, Alaska, Hawaii, the Philippines, Australia and New Zealand, Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Guatemala, Uruguay, Venezuela, England, Ireland, Scotland, Sweden, Norway, Finland, France, Germany, Austria, Belgium, Italy, Netherlands, Portugal, Spain, Switzerland, Yugoslavia, India, Pakistan, Israel, Morocco, Egypt, Turkey, South Africa, China, Hong Kong, Japan, Formosa, near and far around the world, wherever pulp and paper are made.

Newsprint and Newspapers

The next time that the newsprint price causes consternation in the newspaper publishing world, it might be worthwhile for executives of the newsprint industry to point a finger to the record of $526,000,000 in national advertising income for United States newspapers in 1952. Total newspaper advertising was estimated at $2,309,000,000 and running 4 percent ahead of that figure in 1953!

This could not have been possible if the U.S. was not receiving 91 percent of all Canadian newsprint exports. Some recent newsprint consumption figures show annual U.S. per capita consumption of newsprint at 78 lbs., compared with only 50 lbs. in Canada, only 7.3 lbs. in Japan, only 1.6 lbs. in Egypt, etc. Even in free continental Europe, the total paper consumption per person is only one-eighth of the U.S.A. figure, in Scandinavia it is less than one-third.

Of course, newspapers, just like paper mills, have been hit by high taxation, rising labor costs, etc. But the difference is the former have a ready-made "platform" from which to sound off their woes—their newspapers. And there are scores of senators and congressmen who will not hesitate to use government influence to help their publishing friends in their financial problems. There is no other private business or industry in the world that has such powerful help.

Now that the world shortage of newsprint is definitely over, some of these goings-on in Congress seem hardly justified. For instance, appropriations of tax money to try to develop newsprint industries from less economically feasible fibers than wood. Also the moneys and time expended in investigations of all sorts, aimed mostly at the Canadian industry.

If the U.S. ceased to purchase 75 to 80 percent of its newsprint needs from Canada, then Canada would soon cease to be the biggest market in the world for American exports.

What Costs Might Be Cut?

Are you quite sure that the costs of what you make cannot be cut drastically? That question bobs up because we have just been reading about what General Electric has been doing to make savings. General Electric has a corps of specially-trained engineers whose job it is to see what can be done to cut costs without lowering quality.

Although this has been going on for only three years, millions of dollars have been saved. Take a small example. A temperature control gadget was studied. Every piece of metal in the item was studied to determine whether it was the proper one for the job. A springy bronze clip, which had cost $7,000 a year, had been used to hold a cover in place. Tin-plated spring steel would do the job as well. The cost was fifty per cent less. Another spring, in the same instrument, used material that cost $11,000 a year. A substitute steel cost only $3,000 a year. The total cost of the gadget was cut 25 per cent.

Every conceivable operation from design and the purchase of materials to actual manufacturing is studied. These men do not think in terms of saving dollars. They go after savings of fractions of a penny. Dollar savings follow.

The findings of the value analysts are sent to the production department and it is then up to the production men to accept or reject the recommendations. About eighty per cent of the suggestions have been put into effect.

General Electric will send value analysts into the plants of its suppliers on request. One firm supplied a stainless steel pin that cost GE about a third of a cent each—some 50,000,000 of them a year. As a result of GE suggestions, the supplier made savings that enabled him to sell those pins at a fifth of a cent. That saved GE $112,000 a year.

Are you quite sure that in your business you are doing all it is possible for you to do to cut costs?—*from Rice Barton Corp. "The High Road."*

Pulp and Paper—Canada's No. 1 Industry

How big is the Canadian pulp and paper industry?

Gross value of production is one and one-quarter billion dollars. That is a full 50% greater than the No. 2 and No. 3 Canadian industries—meat packing and mining.

Salaries and wages of nearly one-quarter million dollars is 60% over No. 2 in that classification—the lumber industry—and more than double No. 3—iron and steel. Lumber leads in number employed with 60,000 but pulp and paper is close behind with 57,000, nearly double the railroads, No. 3.

ANOTHER E.D. Jones INSTALLATION

Two E.D. Jones FIBREMASTERS recently installed in a Western New York bleach mill for preliminary treatment of reslushed bleached Kraft pulp. For maximum flexibility they are piped for single, series or parallel operation. Note small space requirements.

Now available with ACCRU-SET®
— automatic plug adjustment

This latest triumph of Jones engineering provides completely automatic, completely reliable finger-tip control of plug adjustment for uniform, predetermined power throughout your stock run. Guarantees more uniform stock treatment, less operating horsepower, protection for plug and shell bars if power or stock flow fails.

Easily installed on any Jones Jordan, Fibremaster or Refiner. Write today for details.

MINIMUM Floor Space MAXIMUM Results

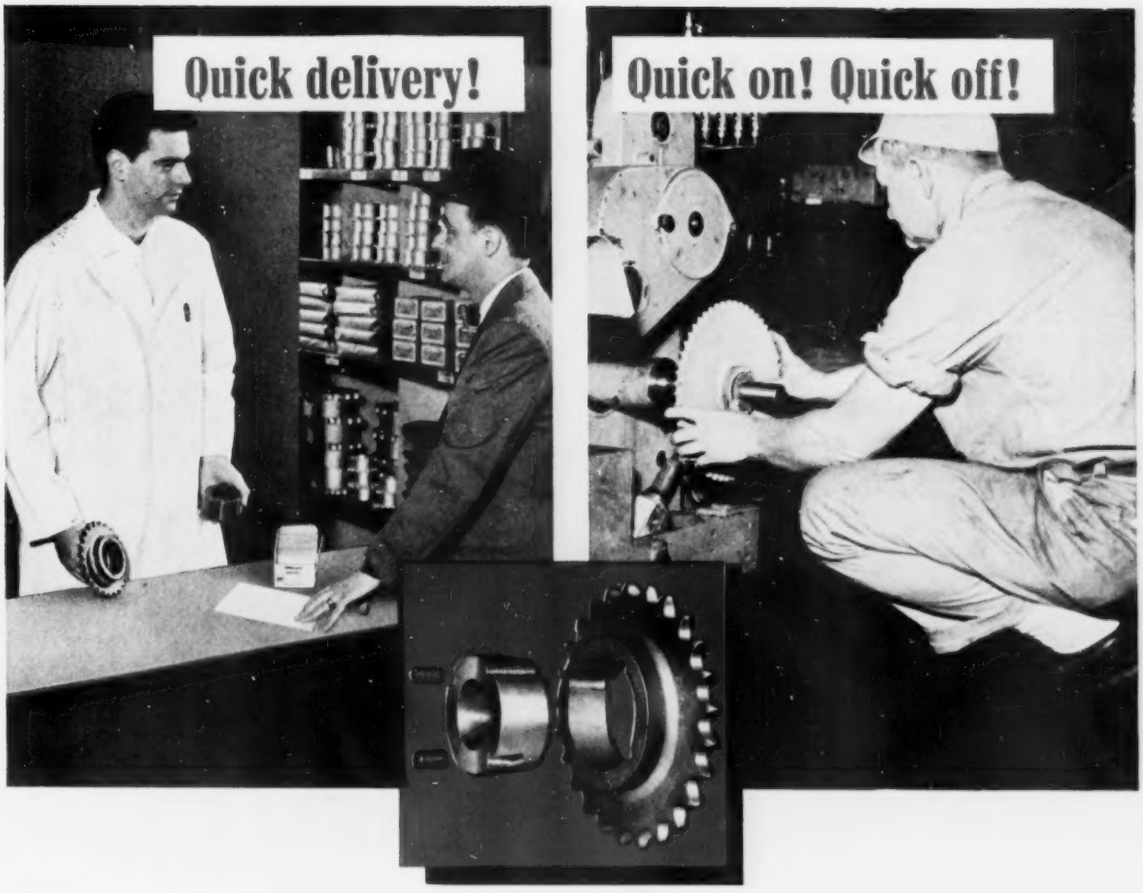
The simplified, rugged design of the FIBREMASTER requires relatively little floor space. Yet it has *twice* the capacity of the famous Jones High-Speed Refiner . . . and without sacrificing any of the features that have made the smaller machine so popular.

As a general utility unit on all stocks from news to rag, the Fibremaster combines flexibility, improved stock control, economy of power and low maintenance cost. Ask your Jones representative for details or write for Bulletin *EDJ-1035.*

E.D. Jones

E. D. Jones & Sons Company
Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

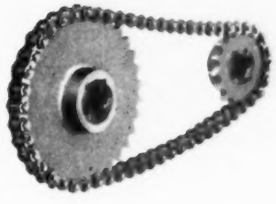


Link-Belt roller chain sprockets with taper lock bushings

HERE'S great news for users of roller chain drives! With the new Link-Belt taper lock sprocket, you don't have to fit the sprocket to the shaft. These sprockets with their taper lock bushings give you the equivalent of a shrink-fit on all standard shaft sizes.

Installation and removal are fast, simple. Set screws force and hold bushing in tapered bore of sprocket, *clamp* it tightly onto shaft. The *full length* of the bushing supports the sprocket on the shaft. Turning set screws in removal holes quickly releases it from shaft.

What's more, it's no longer necessary to wait while wheels are rebored. You can pick these sprockets right off the shelf at your nearby Link-Belt distributor or factory branch store. Available now are sizes for ½, ⅝, ¾, 1 and 1¼-in., single-width chains with other sizes to be announced. Ask for Bulletin 2449.

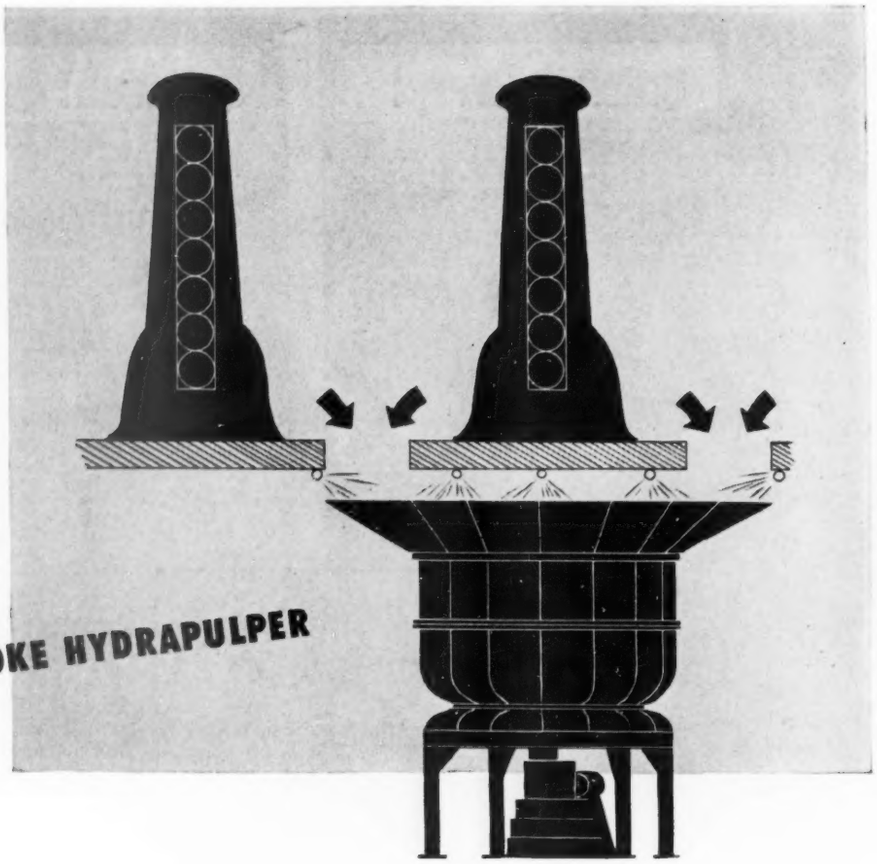


AN IDEAL COMBINATION:
LINK-BELT PRECISION STEEL ROLLER CHAIN & LINK-BELT SPROCKETS

LINK-BELT

ROLLER CHAIN AND SPROCKETS

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle; Scarboro, Toronto and Elmira, Ont. (Canada); Springs (South Africa); Sydney (Australia). Sales Offices, Factory Branch Stores and Distributors in Principal Cities. 13 791



FIFTH BROKE HYDRAPULPER

TO BIG CANADIAN MILL

Recently The Anglo-Newfoundland Development Company, Grand Falls, N. F. installed their 5th broke Hydrapulper—sale by our Associate, The Alexander Fleck Ltd.

Other big users of Hydrapulpers—for pulping, deinking, color and chemical mixing and broke handling—include:

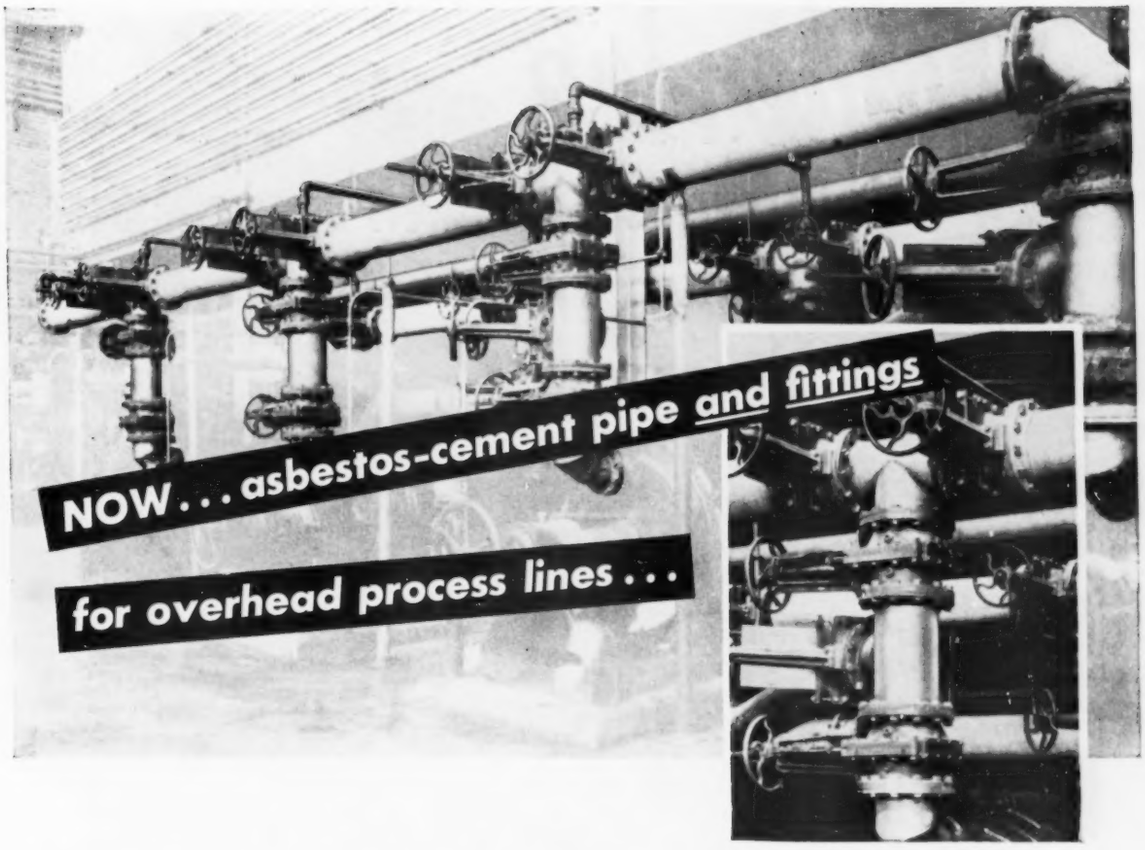
- Robert Gair, 22 in eight mills.
- Les Etablissements Avot-Vallee, France, 9 in one mill.
- Sonoco Products, 12 in two mills.

Total for all applications in all mills 1000 plus.

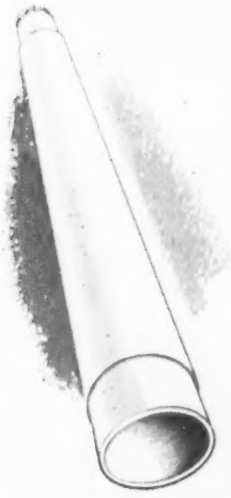
PRODUCT OF SHARTLE DIVISION

BLACK-CLAWSON

THE BLACK CLAWSON COMPANY • HAMILTON, OHIO



Transite Pressure Pipe provides high carrying capacity and economical, efficient service...



You can now obtain Transite* asbestos-cement Pressure Pipe with Transite-lined Streed Fittings for your overhead process systems. This permits the installation of high strength non-metallic pipe for handling raw and treated water, washed and unwashed pulps, stocks of all kinds, multi-stage bleaching systems (except direct chlorination) and certain mill wastes. There is no better way to provide clean pulp and stock than by handling it through Transite Pressure Pipe.

Low installation costs—Transite is light in weight, easy to handle, and can be drilled, cut, threaded and machined with standard tools. *And*, because its carrying capacity stays high, you can specify the smallest diameter pipe necessary . . . thus making the minimum capital investment.

Low pumping costs—Transite Pressure Pipe offers exceptionally low frictional resistance to the flow of liquids (flow coefficient C=140 for water). Since it is resistant to sliming and bacterial growths, this high carrying capacity is continuously maintained so that pumps can be operated at maximum efficiency and lowest cost.

Low maintenance costs—Transite cannot rust and is highly resistant to the corrosive action of mild acids and alkalies. Consequently, it requires a minimum of maintenance throughout its long life.

For underground service too, such as water supply or fire lines, Transite Pressure Pipe offers the same outstanding advantages. To obtain further information on Transite Pipe Systems for paper mills, write Johns-Manville, Box 60, New York 16, N. Y.

*Reg. U. S. Pat. Off.

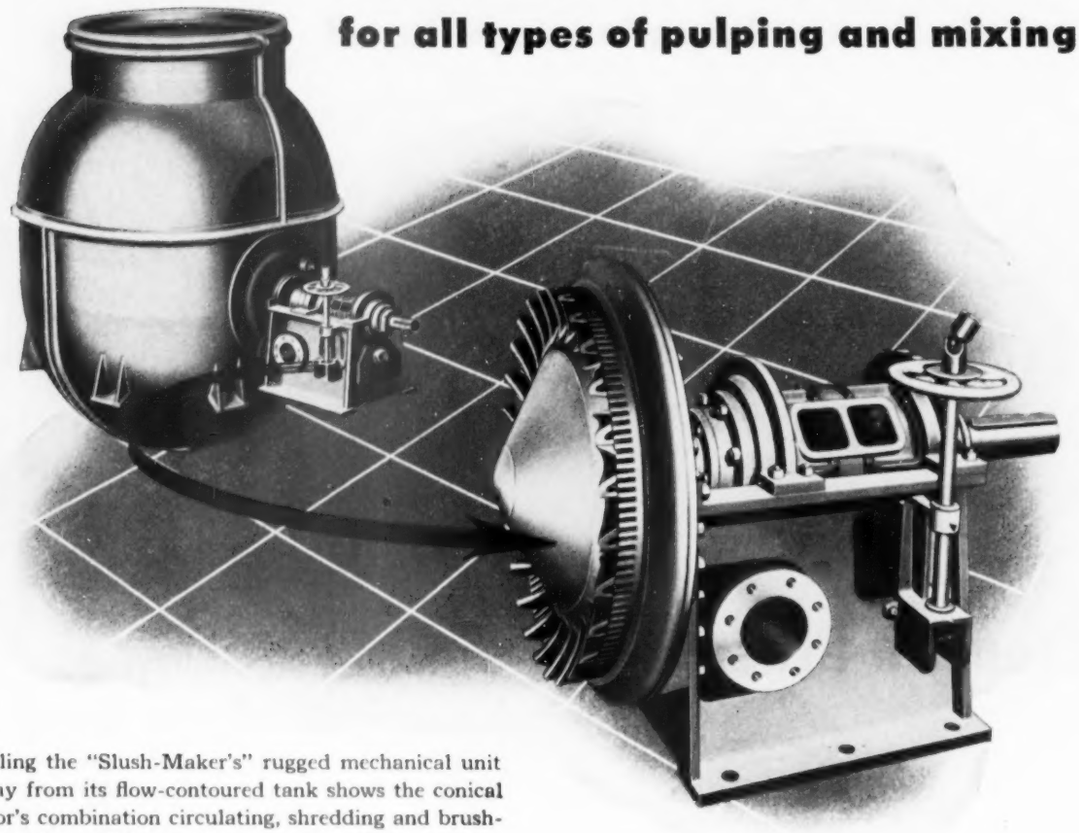
JOHNS MANVILLE JM PRODUCTS

Johns-Manville TRANSITE PRESSURE PIPE

Morden-ize

WITH A Morden "SLUSH-MAKER"

for all types of pulping and mixing



Pulling the "Slush-Maker's" rugged mechanical unit away from its flow-contoured tank shows the conical rotor's combination circulating, shredding and brushing blades, and bars on the stationary attritioning ring

Rapid initial disintegration is given by the rotor's shredding blades.

The positive-flow circulation, across the rotor's face, continually directs the partially broken material at right angles against the bed plate ring.

A hand wheel controlled setting of the rotor assembly can bring the bars on the back of the rotor blades into a brushing contact with the bars on the bed plate ring. This bar-to-bar brushing, when required, will quickly and completely clear all flakes and bundles—even high wet strength—without damage to the fibers.

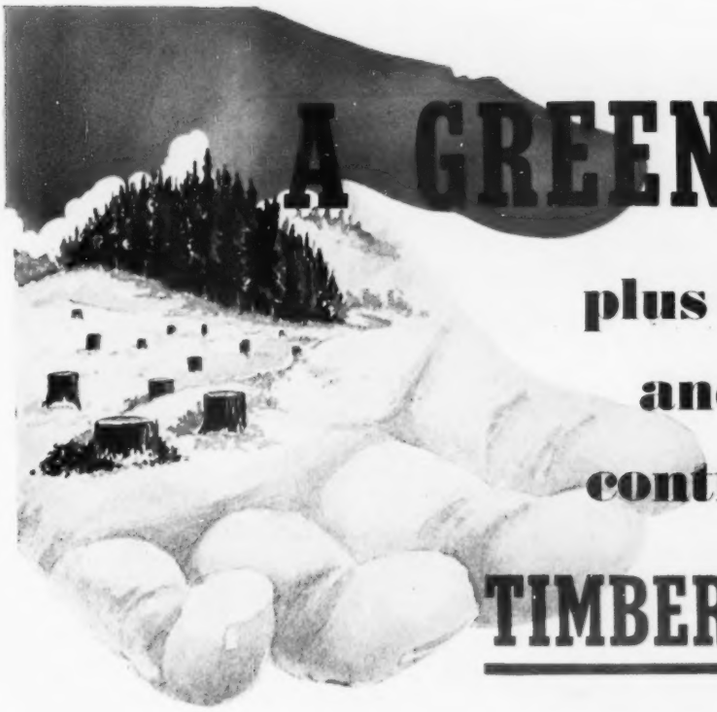
The Morden "Slush-Maker" also thoroughly mixes and brushes in color, size and other materials in a matter of seconds.

The "Slush-Maker's" side mounted rotor quickly and efficiently slushes full charges of pulp, broke or waste paper, either batch or continuous.

Let us know your slushing requirements and we will gladly analyze how you can Morden-ize your pulping and mixing advantageously.

MORDEN
STOCK PREPARATION EQUIPMENT
MACHINES COMPANY

Corbett Building, Portland, Ore.



A GREEN THUMB

plus fire, insect and disease control assures

TIMBER as a CROP!

In the Weyerhaeuser long range timber growth plan, blocks of "parent seed trees" provide seeds for new growth trees which will supply a steadily increasing part of the harvest. As these second growth trees replace virgin timber, the science of tree growing will have to solve many new problems of forest management.

Looking to the future, Weyerhaeuser Timber requirements will be obtained from trees between 80 and 160 years old. To successfully accomplish this transition, Weyerhaeuser Forestry Research is constantly gathering more specific knowledge of tree growing habits and their relationship to fire, insects, disease and logging practices.

The soundness of the Weyerhaeuser sustained yield programs depends on the ability of its foresters to predict with reasonable accuracy the yield of these young forests. Based on these future growth figures, the productive capacity of the Pulp Division can be planned years ahead. As the quantity of the crops from these young forests increases, so will the quantity of Weyerhaeuser Sulphite and Sulphate pulps.

PULP DIVISION WEYERHAEUSER

Sulphur

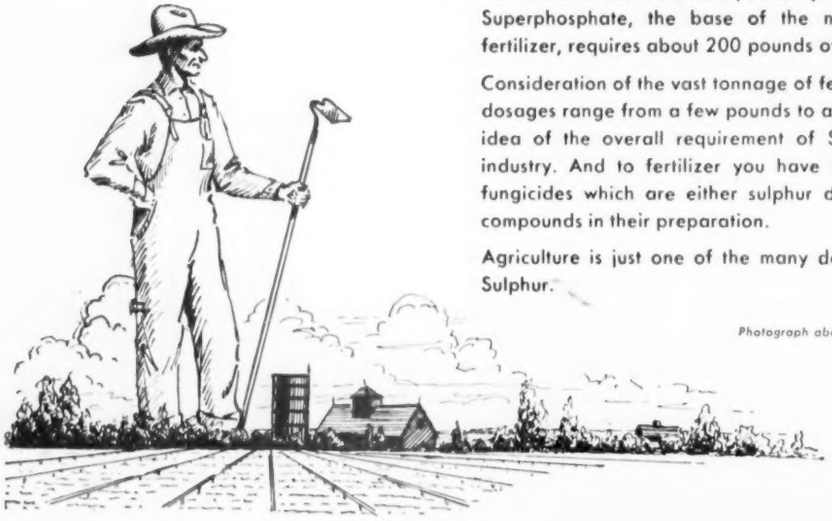
Thousands of tons mined daily, but where does it all go?

THE DEPARTMENT OF AGRICULTURE reports that in 1950 some 336,000,000 acres of land in the United States were under crop cultivation. That's a lot of acreage.

But where, you might ask, is the connection with Sulphur? Fertilizer, to take just one phase of agriculturally-used chemicals in which Sulphur was used either as a component part or as a processing element! Superphosphate, the base of the most widely used manufactured fertilizer, requires about 200 pounds of Sulphur for every ton produced.

Consideration of the vast tonnage of fertilizer used in agriculture — and dosages range from a few pounds to a ton or more per acre — gives an idea of the overall requirement of Sulphur for this one division of industry. And to fertilizer you have to add all the insecticides and fungicides which are either sulphur derivatives or have used sulphur compounds in their preparation.

Agriculture is just one of the many destinations of great tonnages of Sulphur.



Photograph above shows our loading dock at Galveston, Texas

Texas Gulf Sulphur Co.

75 East 45th Street, New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

wood pulp
paper
paper-making machinery
graphic machinery

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100TH ANNIVERSARY

AT PORT ALBERNI, B.C.

Productive Log Barking

is "teamed up" with ADAMS *Automatic* WATER FILTERS

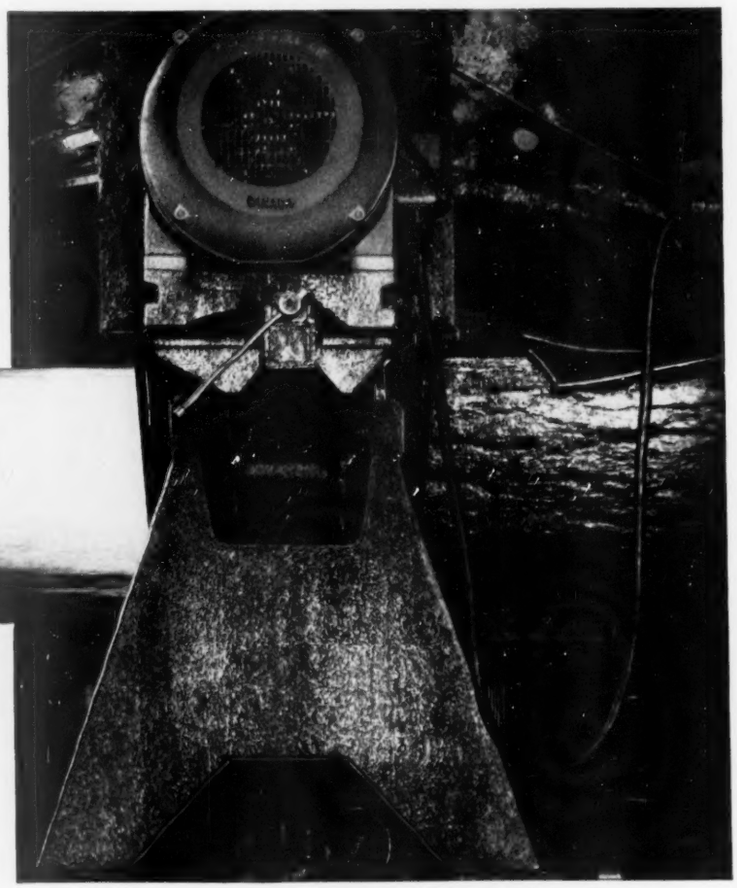
To convert raw water into a tool that blasts bark from logs of any shape or size, *Bloedel, Stewart & Welch* installed a matched team of Adams Automatic Water Filters ahead of their new Hansel hydraulic barkers.

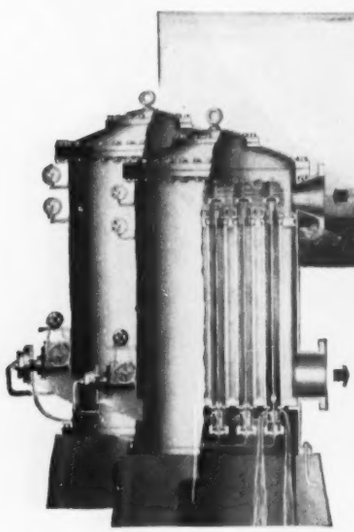
Of critical importance in the barker's continuous, fast production and low maintenance are the films of lubricating water for seal rings as well as for main and thrust bearings. Complete removal of abrasive solids from the Port Alberni water source was necessary if precision-machined surfaces in both the barker and the high pressure pumps were to deliver full performance.

Experiment under actual conditions proved the need for a filter that would not only remove all solids down to 40 microns, but would backwash automatically – a clear case for the Adams AWF Filter with exclusive Adams Poro-Stone Filter tubes. ". . . Adams filters were installed and are performing admirably", states B. S. & W. resident manager.

If you would convert water – your cheapest raw material – into an efficient production tool for pulp, paper, and saw mills, it will pay you to investigate the R. P. Adams line of water filters now.

Send today for new 20-page, file size Bulletin No. 691 on Water Filtration in the Pulp and Paper Industry.



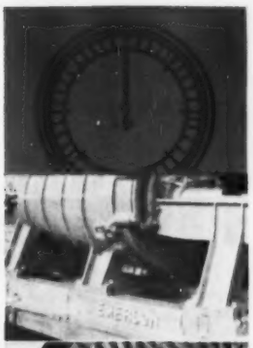


ADAMS AWF WATER FILTERS

HANSEL 60" RING BARKER

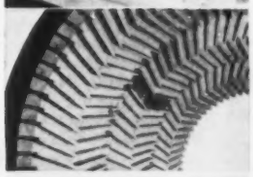
R. P. ADAMS CO., INC.

210 E. PARK DRIVE BUFFALO 17, N. Y.



Every part precison machined to close tolerances under rigid control

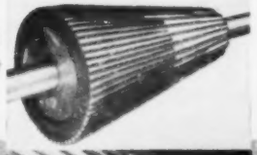
Box pattern base for strength and to minimize vibration



Bolton exclusive shell filling riveted for extra strength

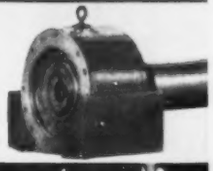
Why you rely on Emerson Jordans

Bolton Wedgeless Plug of cast steel with stainless jacket



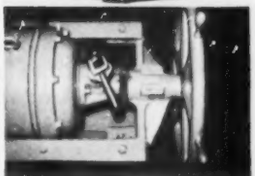
Same plug slots take various filling sizes

Plug shaft positively centered



Sleeve mounted Timken bearings for easy removal

Precision plug adjustment for longer filling wear



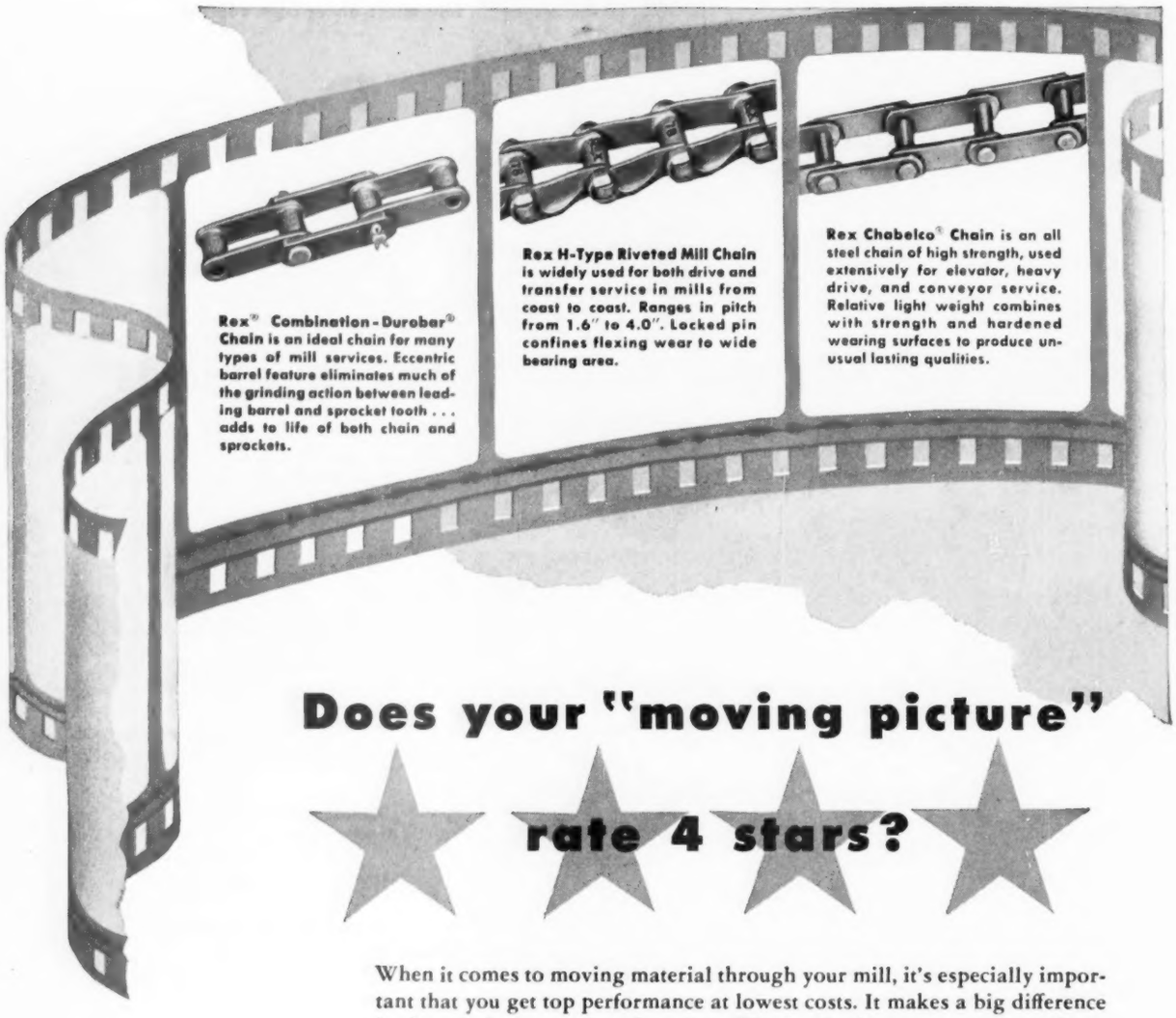
Specially designed for economy in replacing parts

Eight standard models — ask us about special models

John W. BOLTON & Sons, Inc.

EMERSON MANUFACTURING DIVISION

Lawrence, Massachusetts, U.S.A.


Rex® Combination-Durobar® Chain is an ideal chain for many types of mill services. Eccentric barrel feature eliminates much of the grinding action between leading barrel and sprocket tooth . . . adds to life of both chain and sprockets.
Rex H-Type Riveted Mill Chain is widely used for both drive and transfer service in mills from coast to coast. Ranges in pitch from 1.6" to 4.0". Locked pin confines flexing wear to wide bearing area.
Rex Chabelco® Chain is an all steel chain of high strength, used extensively for elevator, heavy drive, and conveyor service. Relative light weight combines with strength and hardened wearing surfaces to produce unusual lasting qualities.

Does your "moving picture" rate 4 stars?

When it comes to moving material through your mill, it's especially important that you get top performance at lowest costs. It makes a big difference in that vital matter of profit or loss. That's why it pays you to investigate the Chain Belt line of materials handling equipment.

Whether your "moving picture" calls for chains and sprockets, belt conveyors, or complete bucket elevators, you'll find in the complete Chain Belt line the exact equipment that best fits your requirements for low-cost materials handling.

Rex Engineers are well qualified by years of experience to help you with your design, selection and replacement problems. They are backed by equipment which has been recognized as "tops" in quality for over 60 years. Call your nearest branch office today or write for more information on Rex Equipment for the Forest Products Industries. Chain Belt Company, 4691 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT REX COMPANY ®

Chain

ATLANTA • BALTIMORE • BIRMINGHAM • BOSTON
BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS
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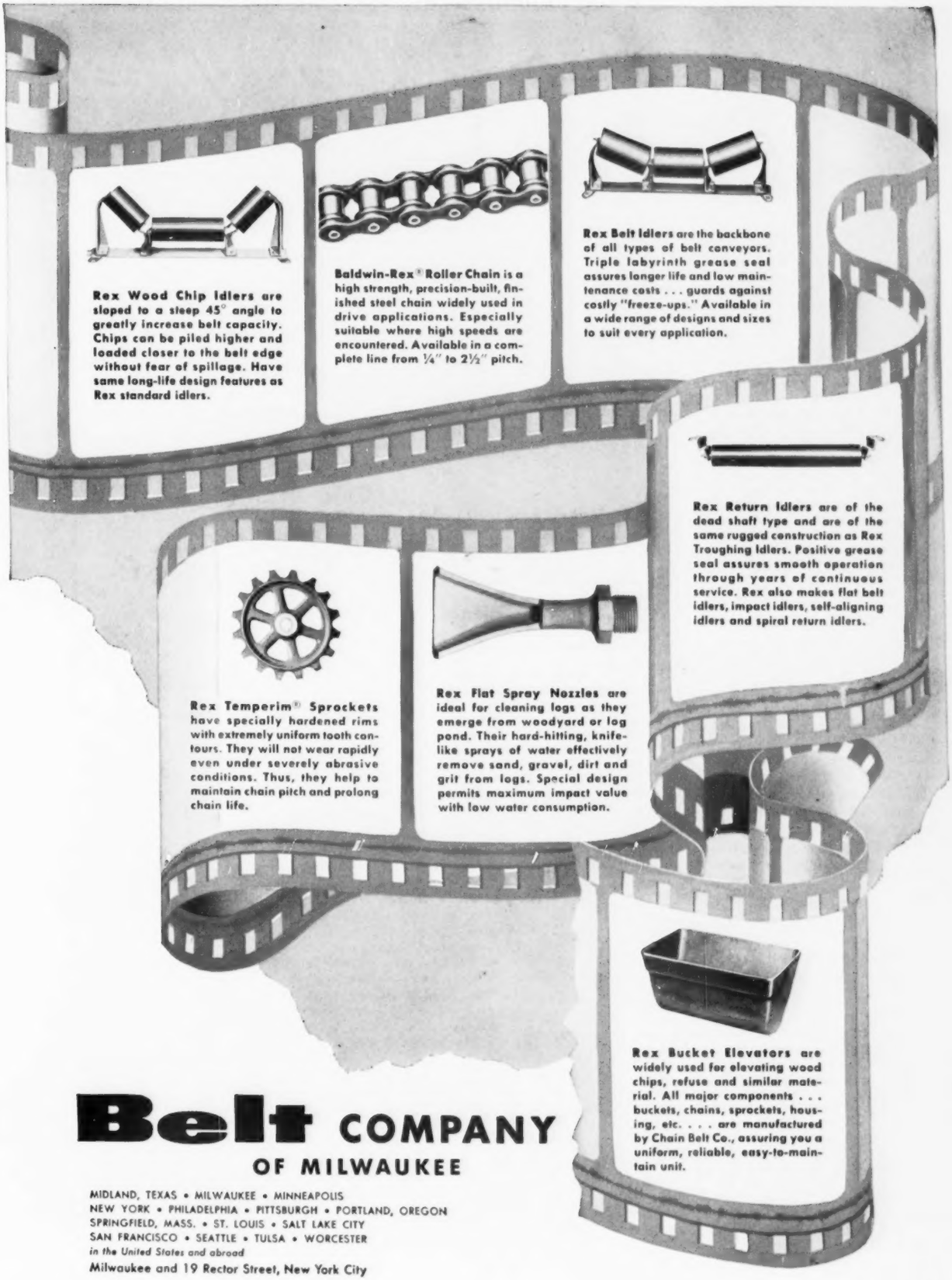

Rex Wood Chip Idlers are sloped to a steep 45° angle to greatly increase belt capacity. Chips can be piled higher and loaded closer to the belt edge without fear of spillage. Have same long-life design features as Rex standard idlers.

Baldwin-Rex® Roller Chain is a high strength, precision-built, finished steel chain widely used in drive applications. Especially suitable where high speeds are encountered. Available in a complete line from ¼" to 2½" pitch.

Rex Belt Idlers are the backbone of all types of belt conveyors. Triple labyrinth grease seal assures longer life and low maintenance costs . . . guards against costly "freeze-ups." Available in a wide range of designs and sizes to suit every application.

Rex Return Idlers are of the dead shaft type and are of the same rugged construction as Rex Troughing Idlers. Positive grease seal assures smooth operation through years of continuous service. Rex also makes flat belt idlers, impact idlers, self-aligning idlers and spiral return idlers.

Rex Temperim® Sprockets have specially hardened rims with extremely uniform tooth contours. They will not wear rapidly even under severely abrasive conditions. Thus, they help to maintain chain pitch and prolong chain life.

Rex Flat Spray Nozzles are ideal for cleaning logs as they emerge from woodyard or log pond. Their hard-hitting, knife-like sprays of water effectively remove sand, gravel, dirt and grit from logs. Special design permits maximum impact value with low water consumption.

Rex Bucket Elevators are widely used for elevating wood chips, refuse and similar material. All major components . . . buckets, chains, sprockets, housing, etc. . . . are manufactured by Chain Belt Co., assuring you a uniform, reliable, easy-to-maintain unit.

Belt COMPANY
OF MILWAUKEE

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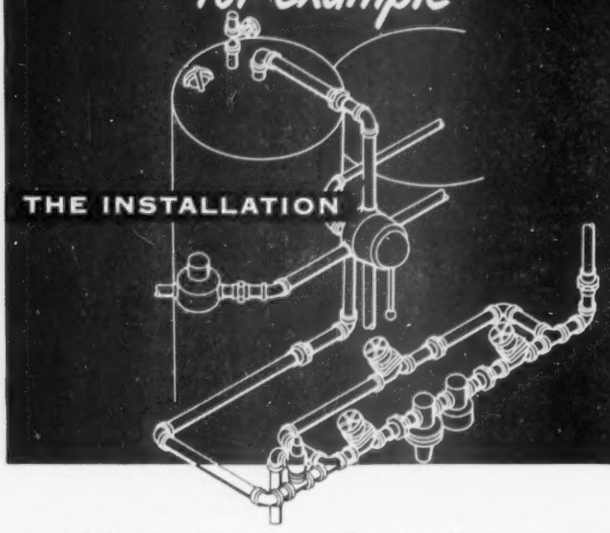
in the United States and abroad
Milwaukee and 19 Rector Street, New York City

This Valve Stops the "Up" in Upkeep ...on Water Service Piping, for example



At the Excello Paper Products Co., Inc., Cincinnati, using Crane Diaphragm valves on city water supply lines; also on plant service water piping, hot and cold.

VALVE SERVICE RATINGS

SUITABILITY: Doing what other valves couldn't

FEATURES: Packless - Long Life Diaphragm

MAINTENANCE COST: No regular maintenance needed

SERVICE LIFE: Outlasting other valves many times

OPERATING RESULTS: Safety hazard to personnel stopped

AVAILABILITY: Crane catalog item - No. 1610

THE CASE HISTORY

Typical of many processes using a lot of water, this plant has numerous open end lines and hose connections. And because of very frequent operation, the valves formerly used in these lines required more than usual servicing to keep up with leakage, dripping hose lines, and hazardous, messy floors.

Crane No. 1610 Diaphragm valves were selected to replace the troublesome conventional valves. Immediately these packless valves stopped the annoyance and expense of stuffing box and seat leakage. Their pliable disc insert ring made a tight seat on open end lines with minimum effort on handwheels.

The replacements were started about 2 years ago. With no attention whatsoever, all Crane Diaphragm valves remain tight, and the plant's water leakage problem remains solved.

THE VALVE

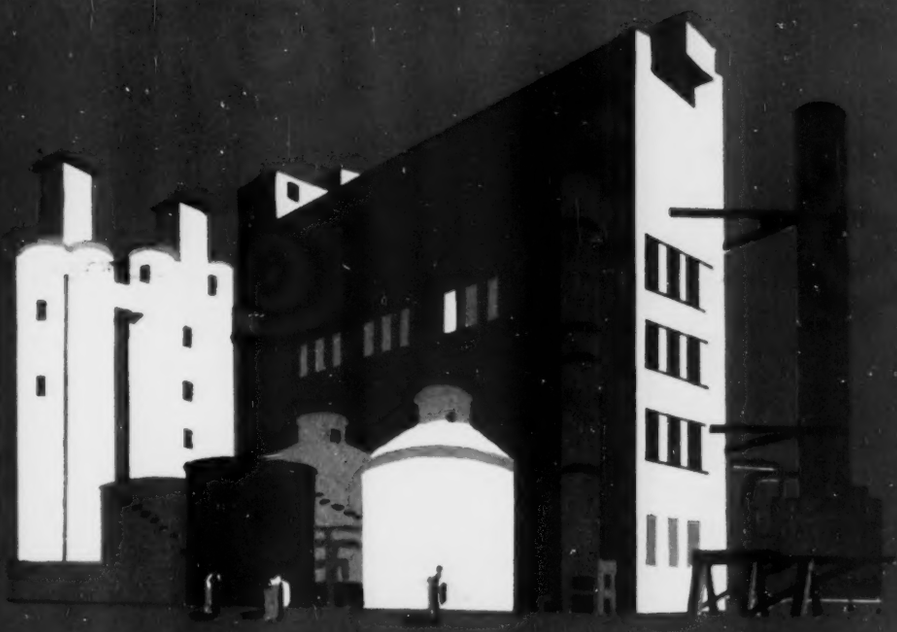
Water is but one of hundreds of fluids Crane Packless Diaphragm valves handle efficiently. Their sealed-to-fluid bonnet and "soft-seating" disc are ideal for all sorts of hard-to-hold liquids and gases; also for sludges, slurries, etc. Separate disc and diaphragm design saves diaphragm wear; permits tight seating even should diaphragm fail. Choose these valves from a wide range of materials, lined or unlined body, for corrosive or ordinary applications. See your Crane Catalog, or your Crane Representative.

THE BETTER QUALITY...BIGGER VALUE LINE...IN BRASS, STEEL, IRON

CRANE VALVES

CRANE CO., *General Offices:* 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING



CONSISTENT EXPANSION

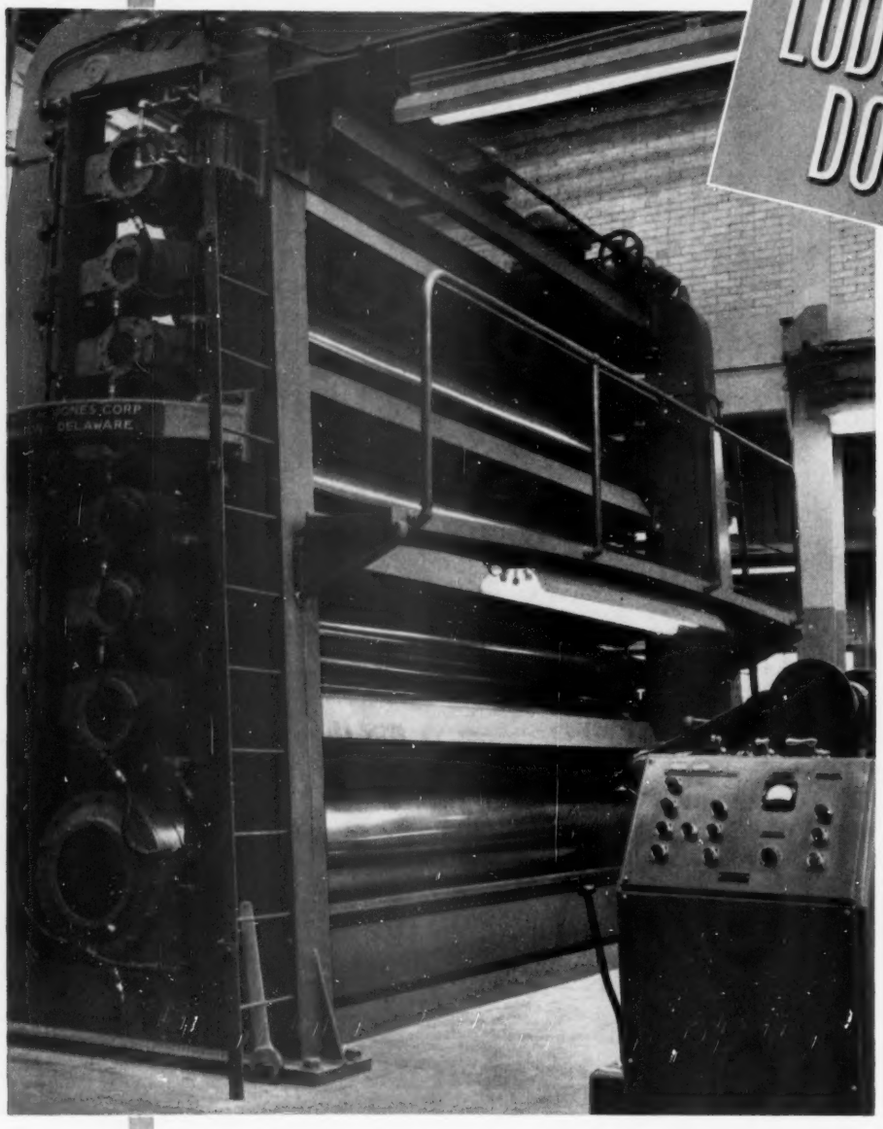
Puget Sound, pioneer pulp mill in the Pacific Northwest, has been expanding consistently ever since World War II. New hydraulic barking equipment, a new industrial alcohol plant also producing *Lignosite*, a new paper board mill . . . and, now, new facilities for the production of bleached pulp. Puget Sound . . . the oldest and newest pulp mill in the West.

PUGET SOUND

PULP AND TIMBER COMPANY

BELLINGHAM • WASHINGTON

LODDING DOCTORS



Still another installation of Lodding modern calender doctors . . . *hydraulically oscillated*

LODDING ENGINEERING CORPORATION
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REPRESENTED BY
W. E. GREENE CORPORATION • WOOLWORTH BLDG., NEW YORK

Get these useful facts on bleaching

NEW 76-PAGE MANUAL

Describes pulp chlorination, production of lime bleach, preparation of soda bleach, analysis of hypochlorite solutions, equipment and methods for handling chlorine, and Hooker services available to you. For your free copy, write today on your business letterhead.

These bulletins on pulp and paper bleaching can help you obtain maximum efficiency from your bleaching operations. The following subjects are included.

- 201—Process and equipment for making bleach liquor for use without settling.
- 211—Chemistry of bleaching chemical wood pulps.
- 214—What do we know about bleaching?
- 236—Importance of pH and catalysts in bleaching operations.
- 242—Production and use of unsettled bleach liquor.
- 243—Procedures and brightness grades in bleaching sulfate pulps.

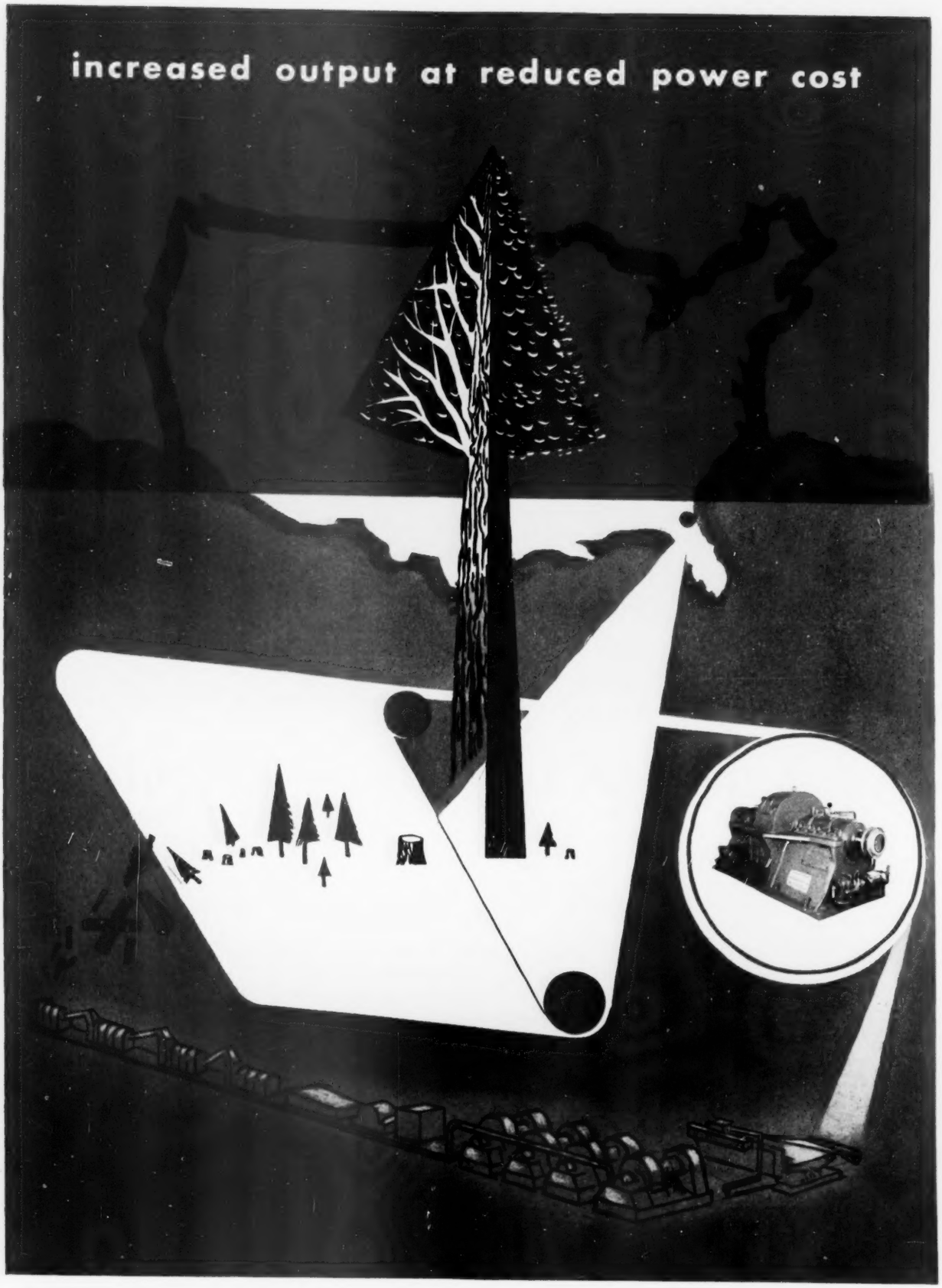
Copies of these bulletins, and a list of titles of other helpful literature, will be sent to you without obligation. Address your request to HOOKER ELECTROCHEMICAL COMPANY, 2 Union Street, Niagara Falls, N. Y.

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

NIAGARA FALLS • TACOMA • NEW YORK • CHICAGO • LOS ANGELES

HOOKER CHEMICALS


increased output at reduced power cost

. . . . . with the

SUTHERLAND REFINER...

That's the report from the National Container Corporation, Jacksonville, Florida, after installing Sutherland Refiners for its mill operations. W. C. Hayes, Paper Mill Superintendent, states:*

1. POWER—With all Jordans . . . we were using 9.8 KW per ton day. With all refiners . . . we are using 6.0 KW per ton day.

2. QUALITY OF BOARD—has been improved by the use of Sutherland Refiners.

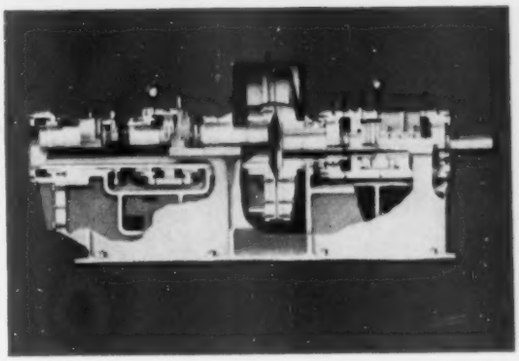
3. MAINTENANCE—Jordans . . . 48 hours to refill plug and change shell. Refiners . . . only 2 hours to change a set of discs.

4. SPACE REQUIREMENTS—The refiners are taking up no more room than the Jordans were, yet we can refine 400 tons of stock today, whereas before we could refine only 300 tons.

These facts are typical of the more than 400 Sutherland installations in mills throughout the country. The Sutherland Refiner's controlled, continuous beating process assures controlled fiber quality to meet all sheet requirements plus these profit-making advantages:

HIGHER TONNAGE . . . Faster drainage and drying qualities of Sutherland treated pulp permits increased machine speeds—greater production.

REDUCED OPERATING COSTS . . . Lower power usage per ton of paper and low cost of maintenance provide greater economies for modern mill operations.



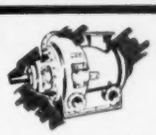
HIGHER OPERATING EFFICIENCY . . . Minimum floor space requirements, less rejected paper and less down time for servicing, result in time-saving efficiency . . . and greater profit.

Why not learn more about how Sutherland Refiners can improve stock preparation operations at your mill? Details of the wide variety of Sutherland applications are furnished in an illustrated folder, available upon request. Write for your copy, today . . . no obligation, of course.

*WE QUOTE FROM AN ARTICLE IN THE PAPER TRADE JOURNAL. A COPY OF THE ARTICLE CAN BE OBTAINED WITHOUT CHARGE BY WRITING TO THE SUTHERLAND REFINER CORPORATION.

SUTHERLAND REFINER CORPORATION

TRENTON 8, NEW JERSEY



BREAKER TRAPS • PRESSURE WASHING • HIGH YIELD SYSTEMS

MANUFACTURED BY—
VALLEY IRON WORKS CO., APPLETON, WISCONSIN

Pennsalt Sodium Chlorate is produced in volume in this newly-expanded Pennsalt plant at Portland, Oregon.

for whiter, brighter pulp turn to

PENNSALT SODIUM CHLORATE

The advantages of Chlorine Dioxide as a bleaching agent are well known. This chemical, produced from Sodium Chlorate, bleaches pulps for certain purposes more advantageously than ordinary commercial bleaching agents. Furthermore, Chlorine Dioxide is a selective bleach. It has the power to destroy wood specks and bark specks, thus giving a cleaner end product —yet it does not impair the pulp's physical or chemical properties. This selective bleaching agent also enables a pulp mill to make use of a higher percentage of the wood raw material.

PRODUCED IN YOUR OWN PLANT

In a properly constructed generator, the manufacture of Chlorine Dioxide begins with Sodium Chlorate—the chemical that Pennsalt produces at its Portland, Oregon, plant. By treating Sodium Chlorate with sulfuric acid, and sulfur dioxide or organic reducing compounds, Chlorine Dioxide may be generated at the bleach plant site.

A FREE TECHNICAL SERVICE

To help you take advantage of this new process, Pennsalt offers both chemical and technical assistance. Pennsalt specialists will gladly aid you in designing a generator and other equipment, and thoroughly acquaint you with this new bleaching process.

As for the Sodium Chlorate—key chemical in this method—Pennsalt supplies it in commercial 99% grade. It is shipped as white crystals from Portland, Oregon, in 110 lb. one-way drums and in tank cars.

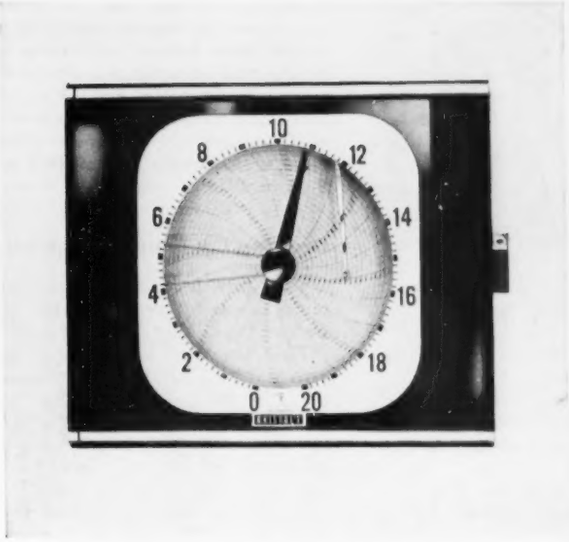
Pennsylvania Salt Manufacturing Company of Washington
Tacoma, Washington • Portland, Oregon

Pennsalt Chemicals

BRISTOL ELECTRONIC

DYNAMASTER POTENTIOMETERS

feature Continuous Standardization!



advantage 1:

No dry cells to fuss with . . .

thanks to Bristol's constant voltage source, which is continuously compared with the voltage of a standard cell.

advantage 2:

Continuous operation . . .

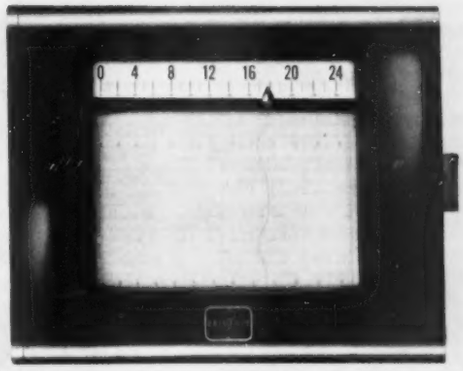
no interruptions for standardization.

advantage 3:

No standardizing mechanism

No wonder the Dynamaster is the finest-performing potentiometer on the market!

BRISTOL DYNAMASTER with round (above) and strip (right) charts feature identical components and units, except for the chart drive.



Bristol Electronic Dynamaster Potentiometers for every use!

Recorders—single and multiple records and two continuous ink records;

Electric Controllers — on-off and all types of proportioning control;

Air-Operated Controllers—on-off, proportional (0 to 30% and 0 to 100%), reset, derivative, and reset plus derivative control actions.

Write for free Catalog P1245 to The Bristol Company, 142 Bristol Road, Waterbury 20, Conn.

BRISTOL

The dependable Guidepost of Industry

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

FINDING TRUE SECURITY

A LOOK INTO THIS INDUSTRY'S FUTURE

By Henry G. Boon
Vice President of Industrial and Public Relations, Kimberly-Clark Corp.

(Major portions of an address given recently by Mr. Boon before the Third Annual Labor Management Dinner of the Neenah-Menasha Trades and Labor Council in Wisconsin.)

STRIVING FOR SECURITY is not an unreal goal—it is as natural as nature itself for all of us to try to take the bumps and uncertainties out of our economic life—so long as we don't make that our only goal.

Managements have long since recognized that it is good business to promise the peace of mind offered by security.

We all know that we can't vote security—the government can give no more than it takes—but that won't stop us from trying. Even though in our own time, let alone history, we have seen governments fall flat in their efforts—and the citizens went down with the government.

These two realizations on the part of management—that an employe who feels secure is a better worker—and that if industry can't provide security government will be called on—have caused all enlightened managements to do everything in their power to provide all of the elements of security they possibly can.

For many years we at K-C have stated that the outstanding characteristic—or goal—of our company has been "maximum security without undue sacrifice of opportunity."

None of our employes would settle for security that would guarantee them whatever their current pay is, if that minimum were also the maximum they would ever be paid. Similarly there would be a howl of protest if it were announced that promotion from within would cease and all seniority and merit lists abolished.

So we have a goal which is a combination goal of security for what we have, and opportunity to get more. All this our managements in bargaining or otherwise have promised to the employes of industry.

This concern for the future of its employes is very real, *but who provides for the future of the companies themselves?*—Who assures them that their audacious promises can be kept?—How can companies promise all these things when there is no one to promise that the companies' products will always be able to be sold at fair prices? Where is true security for all of us who work for a living?

The Future of This Industry

To answer these questions we must look into the economic future. We must find what it is that makes our managements confident that these promises can be kept.

HENRY G. BOON—"The customer is now the dictator at industry's bargaining table."

Population-wise, right now we must produce goods for nearly three million more people each year. Our birth rate for the last five years has been steadily higher than in any year of the preceding quarter century. And our death rate is a little lower each year due both to our higher living standards and to advances in modern medicine.

Studying the makeup of the 1950 and anticipated 1960 populations the following facts stand out. In 1950 42 percent of the population was either under 20 or over 64 years old while in 1960 this figure is expected to be 47 percent. The age group 20 to 29 years old actually loses 6 percent of its people in the decade in question!

In terms of population, then, our market is expanding rapidly due to higher birth rates and lower death rates. Both long and short term prospects indicate continuation of this rapid expansion of population. It is clear that our increasing population will require an increasing volume of goods to supply it.

In terms of work force available to produce these goods, however, the expansion is not nearly so great. Besides the temporary lull in 18 to 20 year olds, we are faced with a more delayed entry into the work force due to the trend toward more years of formal education per individual. We have also increased the number of persons leaving work force at age 65 through our more extensive social security and pension coverage. And over the years, history shows that we continue to cut back slowly in the number of hours we work per week. Partially offsetting these happenings is the fact that increasing numbers of women appear on employment rolls each year.

The one other major fact to be considered in the long term study is the capacity which the American people display each year to produce and consume more goods per individual than they did in the previous year. This increase in consumer goods per individual totalled 32 percent from 1940 to 1950 and was 40 percent from the high, pre-depression, year of 1929 to 1950. We commonly call this increase in the goods we consume an increase in our standard of living. And we must bear in mind that this was accomplished during a period when a great part of our inventive genius was turned toward producing war material. The actual figures, in 1939 dollars, show that we have increased the per capita share of consumer goods from $500 in 1929 and a low of $400 in 1933 to $700 in 1950.

Growing Consumption Capacity

This growth in consumption means so much to our future that a little time shall be spent in talking on how it is all possible.

First, we must assume that we can never satisfy all the wants of our people. There is an untold amount of things we would all like to have if we could "afford" them. Certainly a single product could be overproduced but we will never be supplied with all of the things we want.

Second, we tend to consume as much as we produce. We are paid money for producing goods and services. Part of this money is taken by the government and is spent to procure some of these goods and services. A much larger part of the money is spent by us to buy the goods we consume.

The third part is what we save. These savings are normally loaned to, or investe in industry, either directly or through banks and insurance companies, and industry spends the money to buy buildings, equipment and tools.

Thus the money paid us for producing, distributing and selling goods is normally spent in order to consume these goods. The only way we can increase the volume of goods available for consumption is to produce more goods. By continually producing more goods at less cost the goods become available to more and more people. This is what the American free enterprise system does through competition among businesses.

The two factors, population growth, and the ever growing capacity to consume, mean that we as a nation must increase our capacity to produce by nearly a half in the next ten years to maintain the present rate of improvement in our standard of living. *This is not an impossible feat since in the decade from* 1940 *to* 1950 *we did increase our total national production* 54 *percent.*

This entire increase won't come from existing industries only. Many new products will be developed and production of these will rise very rapidly. For any existing industry or manufacturing company within an industry it is estimated that it

will take an expansion of about a third in the next decade in order to continue to supply merely the proportionate share of the market which it supplies today.

Any company, then, desiring to hold its own, must increase its production almost three percent per year while adding one percent to its work force.

The balance of people available for work will be absorbed by the many new industries which must expand much more rapidly than those just trying to hold their own. All this means not only more expansion of capacity but constant modernization to assist each man to be more productive. Only in this way can the increased production be sold cheaply enough to make it available to more people and in greater quantity to all.

The outlook, then, for industry in general is more expansion, but not in the same amount for all individual industries. Certainly we don't need much expansion in the production of buggy whips and kerosene lanterns, while the application of atomic energy, electronics or even materials handling equipment is expanding at a rate far in excess of three percent per year.

There is one pertinent fact in our short time economic future, however. The current rapid expansion of military output is predicted to reach a peak in 1954. By 1955 further demand for ships, tanks, guns and planes is expected to amount to replacement quantities and new models.

This cutback in military demand and in the construction needed to furnish this demand will cause a reduction in spending of $20-25 billion a year. Plans are now being made in all areas of our economy to cushion the effect of this change.

We must anticipate some sort of settling operation in the immediate years ahead. In fact, many indications of this tapering of the boom are already in evidence. The price level we are now on is one which is sloping gently downward as various businesses have found it necessary to lower their prices somewhat to keep their goods moving. Kimberly-Clark is one of those businesses. The so-called Kleenex Carnival was designed to move more volume—in fact, had to be the result if we were to avoid a cut-back in our expanded operations. The main feature of the carnival was price reduction, which apparently was good news to the customer, but it meant a big profit squeeze for us.

The narrowed profit margin can't help but cut into the cushion for wage improvement since we can only divide what we have. The cost of living factor is gone; in fact, those wages tied to the index have fallen. The productivity gains have largely been passed on in the form of lower prices or otherwise.

Gains this year, then, are likely to be measured more in terms of increased buying power than in increased take-home pay. It is important that all of us think this through.

We simply must face one fact. When we meet at the bargaining table, neither of us is dictating to the other. *The dictator is the customer.* Our real purpose is only to properly divide what there is to divide—and pleased customers represent the only insurance that there will be something to divide.

The Paper Industry

The paper industry is now the nation's sixth largest. Its products are being used at a rate which is still increasing rapidly. This increase is greater than that shown by all but very few of the nation's industries and these few are built around comparatively recent discoveries or uses. The per capita consumption rate has jumped from 210 pounds in 1929 to 250 pounds in 1940 to 400 pounds today. The industry is still expanding rapidly as new uses are found for paper constantly.

I defined security as not only holding onto what we have but also bettering our position for the future. We can't just sit and wait for all these good things to happen to us year after year. There are four major groups of people who must join in this effort to expand the security of all of us.

First, the government has to stop dragging off the huge share of our earnings that it now takes—both individual and business earnings.

Second, the stockholders must continue to sit still while large portions of the earnings they expected to get are plowed back into the business in the form of new plants, better equipment and more research.

Third, managements must be aggressive about the improvement of the production facilities, convincing both the stockholder and the employes that the addition of labor saving equipment and the introduction of better methods is in their interest. These people must not only be convinced to permit these changes *but they must be inspired to demand them.* Of course, management also must always be tuning itself to the customer, even staying one jump ahead of the customer in producing things which the customer doesn't yet know he wants.

I want to conclude by discussing with you the contributions which employes have made and must continue to make to help our future become even more secure. Management does much research on process, equipment and methods, but it can stand a lot more help from the fellows on the job. We need more ideas, more mental effort from all working Americans, to help us devise better products, better processes, better machines and methods to enable us to produce more and better products and so improve the lot of all of us. It takes the entire team to cut accidents and to cut costs and waste that benefit no one.

This is the road to opportunity, this is the road to true security.

SUPERINTENDENTS ELECT DICK, WEHR

DONALD H. DICK of Howard Smith Paper Mills, Cornwall, Ont., new president of American Pulp & Paper Mill Superintendents.

BURKE MORDEN of Morden Machine Co., Portland, Ore., was elected new chairman of the Superintendents Affiliates.

SCOTTISH-BORN DONALD H. DICK, labor relations director of Howard Smith Paper Mills, Cornwall, Ont., was elected new president of the American Pulp & Paper Mills Superintendents Association at the Atlanta national convention June 8-10.

He announced next year's convention will be held at the Mount Royal Hotel, Montreal, June 20-22. Cincinnati is in line for the 1955 meeting, and Philadelphia for 1956.

Newest vice president elected—the fifth—and in line for future presidency after Harry Hadley, Howard Street, Martin J. Auchter and Al Bachmann, is: Howard E. Wehr, division manager, The Mead Corp., Harriman, Tenn. Born in Hamilton, O., where his father, now retired, was a Champion superintendent, Mr. Wehr graduated from the University of Cincinnati in 1927, worked two years with Champion and has been with Mead 25 years, all in their Southern board mills. He was assistant to the past two managers of the Mead "9 point" mills—T. W. Fernald and L. R. Growden—before going to Harriman as division manager in Jan. 1952.

Burke Morden, president of Morden Machines Co., was elected new chairman of the Superintendents Affiliates.

Reuben Robertson, Sr., chairman of Champion, Harry Dunning, vice president of Scott, Don Rochester, APPA, A. J. Miller, Jr., The Mead Corp., and R. D. Gidell, National Safety Council, as well as Governor Talmadge of Georgia, were speakers. Gordon K. Singletary, mill manager, Brunswick Pulp & Paper Co., was chairman and retiring president.

The August issue of PULP & PAPER will report the discussion of the role of the superintendent or supervisor in industrial relations which featured the Atlanta meeting.

Glatfelter Expansion Is Underway

The P. H. Glatfelter Co., Spring Grove, Pa., is engaged in an expansion program to increase digester output and add necessary auxiliary equipment for handling the increased production. New modern liquor making and recovery equipment and the bleach equipment are being added.

DON'T LET ANYONE EVER TELL YOU IT IS EASY TO GET RESPECTABLE PICTURES OF PEOPLE TALKING AND EATING! To solve the problem, PULP & PAPER has combined several pictures taken of different "head tables" at the 3-day Executives Conference of the Institute of Paper Chemistry in the montage shown above. These are trustees and officials of the Institute. Top row, l to r: HARRY F. LEWIS, Dean; DAVID L. LUKE, JR., President, West Virginia Pulp & Paper Co.; AL B. LAYTON, Vice Pres., Crown Zellerbach Corp.; KARL E. STANSBURY, Chairman, Thilmany Pulp & Paper Corp., SYDNEY FERGUSON, Chairman, The Mead Corp. In group at right, l to r: WESTBROOK STEELE, President of the Institute; ERNST MAHLER, Chairman of Institute Board and retired Exec. V.P. of Kimberly-Clark, and ELI WHITNEY DEBEVOISE, former General Counsel for U.S. High Commissioner in Germany, who was guest dinner speaker.
Lower row, l to r: STUART E. KAY, Vice Pres., International Paper Co.; DAN K. BROWN, Chairman, Neenah Paper Co.; W. IRVING OSBORNE, JR., President, Cornell Paperboard Products Co.; HERBERT T. RANDALL, Vice Pres., The Champion Paper & Fibre Co.; GEORGE E. DYKE, President, Robt. Gair Co., Inc., and JOHN G. STRANGE, Vice Pres. and Treasurer of the Institute.

A BIGGER INSTITUTE

STUDENTS AND STAFF PRESENT PANORAMA

THE INSTITUTE OF PAPER CHEMISTRY approaches its silver jubilee next year with an expanded physical plant and broadened research and educational facilities to serve this growing industry. Despite Korea and the draft, despite the skillful and tough competition from other big industries for available talent, this graduate school high up on its verdant South River Street campus in Appleton, Wis., is going to increase its enrollment by nearly 50 percent next fall.

Next Sept. 15 it will enroll a record-breaking entering class of 21, just as rigidly selected from colleges and universities across the land as were its previous entering classes which were limited to about 15. It will be able to accommodate 75 in all, instead of 55.

This was revealed in the inspirational panorama of the Institute's research and educational activity which its staff and selected students presented before the 17th Annual Executives Conference held at the school June 3-5. And particularly, with the formal opening of its new $350,000 General Activities center.

There were 270 persons registered for the conference and 334 atended a dinner at the North Shore Golf Club the second night. The great majority were representatives from the 127 pulp and paper companies which maintain the Institute. It was a rare table or group indeed where presidents, vice presidents or top managers of companies didn't easily outnumber others.

These 127 companies, incidentally, produce about 80 percent of all the pulp and paper made in the United States.

Their top flight officials could hardly escape being impressed by the high-class presentations of excerpts from the educational program by the students and the case studies from Institute research presented by staff members.

From these performances, the industry leaders became aware of the great breadth of graduate training now offered at Appleton. The student presentations, especially, were novel and effective in giving an insight in how useful the graduate training could be to this industry.

The value of teamwork in approaching an engineering problem with many potential answers was shown in one presentation. In another, the value of trained personnel working with mill employes without training, but with knowledge of a process, was indicated. Another case was a demonstration of how a summer mill job led to a desire to continue broadening a knowledge of fundamentals. Another one indicated how practical solutions of mill problems had to be reached by digging deep into fundamental knowledge.

And not least of all—perhaps—was evidence that the young men now being turned out at the Institute appear to be more well-balanced and rounded in personality than is often the case in other graduate schools.

"An example of the highest type of industrial statesmanship," was the way President Westbrooke Steele described the Institute which has grown from its original class of three back in 1930 to its present size, having drawn students from 39 states and 93 different colleges and universities.

New General Activities Center

In mythology and history, too, renowned births have taken place at the height of storm's furies. So it was with the dedication of the new 2-story gray Wisconsin Lannon stone activities center. One of the worst sudden storms Appleton has lately experienced occurred just at the chosen hour, downing literally hundreds of tree branches all over the town, and keeping the dedication indoors.

Ernst Mahler, former president and now chairman of the Institute's board, handed a scalpel and a sealed copper box, containing proceedings of the last two conferences, a registration list, some coins and other mementoes, to Mr. Steele for placing in the cornerstone at a less damp and more pleasant hour out-of-doors. Like Mr. Mahler, Mr. Steele has been identified with the Institute since its founding, first as executive director (he had served in an administrative post with Lawrence College before the Institute became an independent affiliate of that college), and in recent years as president of the Institute under its reorganization.

Mr. Mahler noted that the new building is the seventh major building project of the Institute. It started in two attic rooms of the Lawrence gymnasium, which it shared with the wrestling team, and its first buildings were built in 1931 and 1932. It now has 125,000 sq. ft. of building space, the activities center adding 23,618 sq. ft.

The ultra-modern auditorium in the new building was scene of the Executives Conference for the first time and was filled to overflowing. Offices, conference rooms and some labs are in the new building. It flanks the Kimberly Library and the older main building, now freed for laboratories and classrooms. One side of the new building has a false or unfinished front, where an addition can be made in the future that will create a complete quadrangle for the Institute.

President's Annual Report

Some questions that came up in the closed board of trustees meeting on the first night were indicated in the annual report which Mr. Steele gave as the last event of the third day. In introducing him, W. Irving Osborne Jr., president of Cornell Paper Products Co., said "his vision and guidance have brought the Institute to its present high position."

Mr. Steele said a turning point has been reached in the downward trend in supply of science students since the Korean war began, and "by 1955 there should be an increasing supply." This dropped from 10,000 a year with chem. and chem. eng. degrees to a low of less than 7,000 in 1953.

Of this number, he said there were only about 700 with "an ideal background for our courses at the Institute." He told how Dean Harry F. Lewis and Dr. J. Edward Todd, dean of admissions, and others of staff and alumni, had served in recruiting panels in 39 different colleges from coast to coast in the past year.

"We will continue this program but we must find a new approach to the problem," he said, in stressing competition from other industries. "And we will need an added $50,000 annually for scholarships —an industry 'must'."

He pointed with pride to the best record shown by the Institute's own graduates in a recent test which the Bureau of Navy Personnel made in 12 colleges among 629 graduates. Their average grade was 74.5. The Institute graduates averaged 86.0 percent and no other single college group went any higher than 84 percent.

"Thus, it was indicated our scholarship is high apparently for all graduate schools across the country," said Mr. Steele. He told how Institute representatives had attended 77 professional meetings and published 61 technical papers in the past year. He noted that its delegation to the international wood chemistry and other scientific meetings July 26 to Aug. 7 in Sweden will include Dr. Lewis, Dr. Kyle Ward, Dr. Freidrich E. Brauns and John Strange, Institute vice president, leader.

He announced appointment of Edith Stroschneider, veteran librarian, as librarian emeritus and editor of the library, and addition of Karen Sorenson as librarian, giving the former more time for

CORNERSTONE OF INSTITUTE OF PAPER CHEMISTRY'S new General Activities Building was laid "by remote control." It was "born" in a tornado-like windstorm that tore hundreds of branches from Appleton trees, and so the ceremony was held indoors. Two men who have been prominently identified with the Institute for its entire 24 years were participants. Here ERNST MAHLER, Chairman of Trustees of the Institute and recently retired Exec. V.P. of Kimberly-Clark, is seen handing a sccapel and a copper-sealed box of historical records and mementoes to be sealed in the cornerstone to WESTBROOK STEELE, President of the Institute.

abstracting. Tributes were paid by Mr. Steele to the late F. J. Sensenbrenner, former K-C chairman and president, who left a bequest, and to the late Dr. Clarence J. West, editor and bibliographer of the Institute.

Mr. Steele said two new big group research projects would be undertaken in the next few months. Operating budget for the year was $1,100,000. A number of companies became new corporate members.

Student Presentations

In the first student presentation, the hypothetical "Institute Paper Co.," with its "board of directors" made another annual report to "stockholders." It discussed effects of tariffs, excess profits taxes, and costs of shifting from calcium to ammonia base pulping. In the past this "company" has discussed costs of going into new products in addition to book grades, financial reports, etc.

Dr. Ruth Shallcross, now Mrs. George Maynard, of Madison, Ohio, came back as a part-time Institute consultant, to help Howard Baumgarten, research assistant in economics, lead the meeting as "chairman" and "president," respectively, of the "board." Students participating were Jerome Brzezinski, Krakow, Wis.; Victor Mattson, Summit, N.J.; Richard Boehm, Neenah, Wis.; David Gamber, special student from Pelham, N.Y.; William Kroeschell, Wilmette, Ill.; Richard Valley, Binghampton, N.Y., and Austin Anthis, Houston, Tex.

Dan K. Brown, Neenah Paper Co. chairman, presided at this session and introduced Dr. Lewis—"Mr. Enthusiasm himself"—who directed a student panel. John Parkinson, Wadsworth, O., Arthur Dreshfield, Jr., LaGrange, Ill., and Robert Quick, Chehalis, Wash., presented an engineering problem—debating where to locate a heat exchanger to remove excess heat from a bleach preparation plant. They brought out three solutions and pros and cons of each.

Morris Merchant, Lafayette, Ind., told how an 11-member class spent several days in a Fox River Valley mill, cooperating with workers, studying variables on a Fourdrinier machine, and helped the mill to decisions regarding additions.

Sam Rollinson, Savannah, Ga., collected data on causes of yellowing, or brightness reversion, of bleached kraft pulps. While working in a mill he got interested in the problem for his thesis. He found much unproved speculation as to causes. Improper washing, metallic ions, carbohydrates, and other causes were given.

William Hoge, New Knoxville, Tenn., studied resistance of Douglas fir to sulfite pulping, an outgrowth of similar black cherry studies. He measured reactions between fir "inhibitors" and cooking liquors.

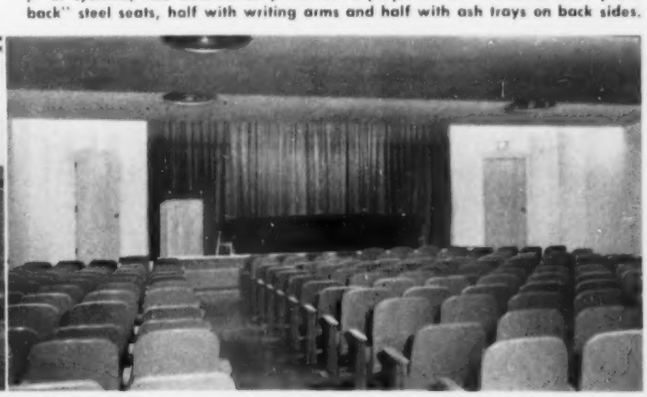
Case Histories By Staff

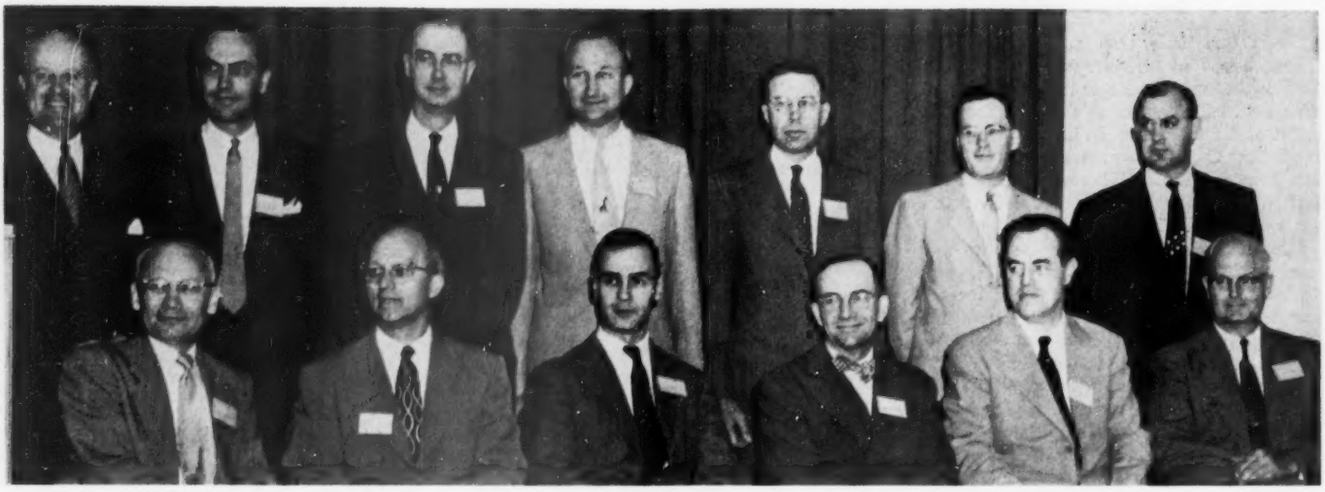
Next day came the case histories by staff members, with Mr. Strange introducing them in a sparkling running commentary. Dr. Lewis first told how analyses of bark by Pacific Lumber Co., Scotia, Calif., 15 years ago led to an insulation board and chemical by-products plant there and established a basis for much waste wood use research since then.

Dr. J. A. Van den Akker told how pressure marking of paper by engraved pressure rolls led to studies and devel-

THIS IS NEW GENERAL ACTIVITIES BUILDING, Institute of Paper Chemistry, Appleton, Wis., formally opened at Executives Conference. In Wisconsin Lannon stone, it is similar in style to older building at lefft in picture. In 24 years, various additions to the Institute, including this last one, almost forms a complete quadrangle, and there is space reserved to complete it in the future years.

ULTRA-MODERN AUDITORIUM in new General Activities Building at Institute of Paper Chemistry. This is where executives of industry met for first time. It seats 204—some had to sit in entrance hall. It is air-conditioned, with built-in p a. systems, has automatically controlled projection screen. These are "push-back" steel seats, half with writing arms and half with ash trays on back sides.





MEMBERS OF THE INSTITUTE OF PAPER CHEMISTRY Staff presented case studies from research work to the industry executives. Seated, l to r, are: Dr. H. F. Lewis, Dean of the Institute; Dr. J. A. Van den Akker, head of the physics group; Dr. John E. Stone, of the pulp and paper technology group; Dr. M. A. Buchanan, organic chemistry; Dr. Willis Van Horn, biological group, and Dr. George R. Sears, physical chemistry.
Standing, l to r, are: W. Irving Osborne, President, Cornell Paperboard Products Co., who presided at the session; John G. Strange, Vice Pres. and Treasurer of the Institute, who introduced the speakers; Dr. T. A. Howells, of paper conversion group; John Swanson, physical chemistry; Dr. B. L. Browning, analytical chemistry group; Dr. Roy P. Whitney, chemical engineering, and Robert C. McKee, paper conversion group.

opment of other equipment and new techniques.

Dr. B. L. Browning, discussing analytical projects, told how the unpleasant smell in a foodboard container was traced to a cobalt dryer in the printing ink used, and exonerated the paperboard. In another case, a wrapper was blamed for discoloring soap. Instead, the soap's own fumes plus products of combustion in warehouse heaters were to blame! In 1952, over 7,000 such samples were tested for various problems, a total of 22,000 tests being run.

Dr. T. A. Howells told of problems concerning custom-built papers. These studies included a paper base for a new type of carpet. A wallpaper that kills flies. A fishwrap that improves fish flavor.

Cooperation by the Institute in lawsuits was the topic of Dr. M. A. Buchanan, his talk —being entitled "The Case of the Built-in Fire Extinguisher." The Institute came to the rescue of a redwood bark insulation manufacturer, against Pacific Lumber Co., when their product was blamed for a store fire. Tests showed the natural resistance of the product to fire; in fact, it is impossible for it to be spontaneously combustible and it emits carbon dioxide which makes it "a built-in fire extinguisher."

John W. Swanson told how the Institute answers "fire department" calls to help mills solve foam troubles. It studies anti-foam agents that work best under different conditions. He told how a salesman of household detergents passing out samples to housewives in a town started foam troubles that enveloped a sewer plant in foam from two to five feet deep.

Dr. George R. Sears related work for allied industries—helping to answer questions whether products are needed by this industry, and what is their competitive position, etc. These included a resin for sizing agent, fungicides, peroxide bleaching, starch precipitation, diatomaceous earth, waxes, asphalts, etc.

Dr. Willis Van Horn reviewed the APPA project in which it was shown that paper drying kills 100 percent of bacteria harmful to public welfare. Also how research for Wisconsin mills and the Stream Improvement Council set out to find possible waste causes for alleged fish deaths. Instead it found a mercurial compound in a slime control which destroys diseases that have been killing fish! It is now used for saving fish, too.

Dr. Roy B. Whitney discussed drainage problems and effects of different pulps on drainage. Only the surface has been scratched in these studies, he revealed.

Dr. John E. Stone told of new studies just recently started on high yield pulping. Already they have brought out new devices for measuring concentration of liquor in chips and of the strength of fibers while being cooked. It aims at finding preferred wood species, the answer to whether hot or cold refining is best.

Robert McKee told of the "plague" of asphalt spots appearing on jute liner—on the dryers, causing what has jokingly been called "Dalmatian" board. Now the jute research group has made one of the industry's most important recent discoveries—a process that will remove a fraction of the asphalt spots and mechanically disperse the rest so they are too small for the naked eye to see.

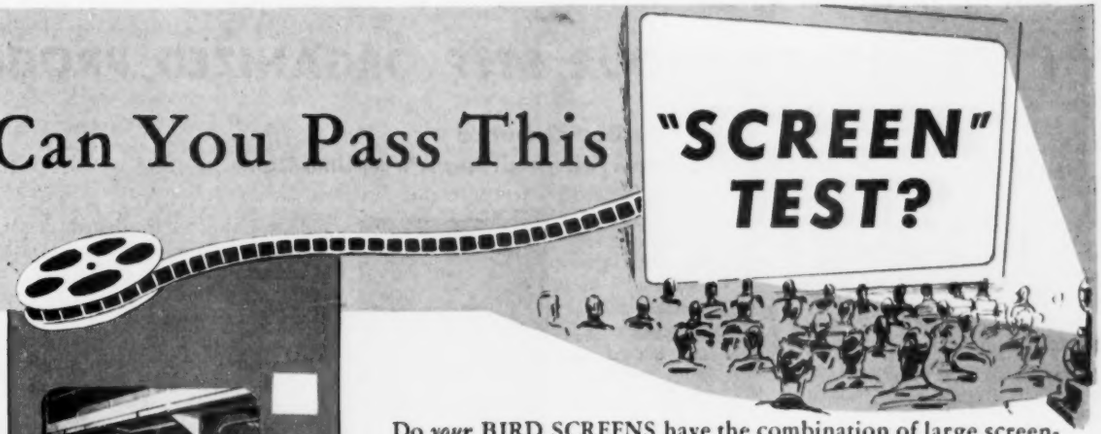
"These were only 11 'samples' out of 1,700 projects at the Institute," commented Mr. Osborne, in closing this session.

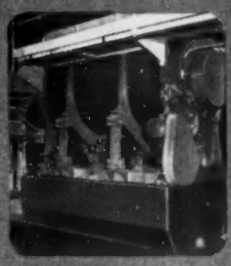
Guest speaker at the annual dinner was Eli Whitney Debevoise, former general counsel of the U. S. High Commissioner in Germany. He said western Germany is as strongly anti-Communist as any part of the world and that unification of Europe is a 'must' if peace is to be maintained. This is going to be a "difficult, decisive year," he said.

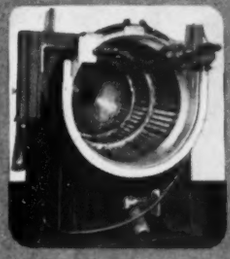
A GROUP OF YOUNGER EXECUTIVES of the industry at Appleton Conference (l to r): **BENTON CANCELL**, Vice Pres., Rhinelander Paper Co.; **WILLIAM H. CHISHOLM**, Vice Pres., Oxford Paper Co.; **BERT C. HOPPER**, President, Hopper Paper Co.; and **P. L. HOVEY**, Staff Production Mgr., Oxford Paper. Mr. Hopper has headed his company since 1934, when he was just 24. Borrowing an expression from history and politics, men like this group might be called "The Young Turks" of the industry because of original ideas they have developed.

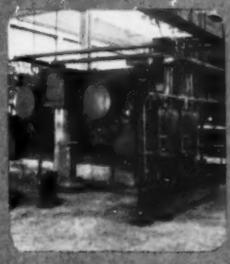
ANOTHER YOUNG GROUP which gathered at Institute of Paper Chemistry for Executives Conference (l to r): **ROBERT ELIAS**, Associate Prof., Pulp and Paper Curriculum, Western Michigan College; **ROY DAVIS**, Vice Pres. in charge of Production, Detroit Sulphite Pulp & Paper Co., who was one of the Institute's first graduates; **MARTIN DOWNS**, Technical Director, Thilmany Pulp and Paper Co., **JAMES E. FOOTE**, Gen. Mgr. Pulp and Paper, Diamond Match Co., and **H. E. OBERMUNNS**, Research Director, Hammermill Paper Co.

Can You Pass This "SCREEN" TEST?









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IMPROVING KEY PERSONNEL

CROWN ZELLERBACH'S FOUR STEP ORGANIZED PROGRAM

By Don Osborne
Training Director, Crown Zellerbach Corp., West Linn, Ore.

A BROAD DEFINITION of key people might be that they are those who direct the work of others. Picture if you will a mill organization chart—the mill manager, his assistants; superintendents and foremen and their assistants; in fact all of the members of a mill organization who go to make up the management team. We would also include in our discussion those people just below the management level who are getting ready for the team, the young engineers, hourly paid foremen and lead men, those people at whom you are looking in your company as future replacements on your management team.

Why should we do anything about improving our key people? Here are six reasons:

1. It offers great opportunity for improvement.

I believe it is one way we can gain advantage over our competitors. We have spent a lot of time and money on development of improved equipment, on research and on material things, but how much time and how much money have we spent on improving our key people? Our competitors have the same advantages as we do. They can buy just as good equipment as we can, use just as good a method of obtaining the same type of materials we can. Our competitive advantage is how effective we are in improving our people. A good example of what I mean is the comparison between the two leading mail order firms in this country. A few years ago they were both on a par with respect to dollar volume of sales. Today one has far outstripped the other. One of the companies has been waiting 20 years for another depression to occur and doing nothing about development of its people, while the other company is recognized as one of the leaders in American industry in the development of key people. Both of these companies had the same opportunities with respect to purchase of the products that they sell, facilities are like; the difference is in how effective their people have been.

2. We cannot leave improvement of key people to chance.

We recognize that an organized approach to solving a problem is the best method. We use a logical procedure for solving our equipment problems and planning machinery replacements. Why not use the same method for approaching the problem of improving our key people? It is easy for us to think logically of *things* but difficult for us to think logically about *people*. One supervisor that I know is an expert with respect to the careful planning that he does on maintenance and care of the equipment in his department. On the other hand, he throws up

DON OSBORNE, who gave this address at Joint Coast Meeting in Gearhart, Ore.

his hands when it comes to doing anything about improving his people. He is not satisfied with the performance of the foremen under his direction, yet he thinks that there is little that can be done to improve their effectiveness.

3. It will help us reduce operating problems due to personal failure.

The National Safety Council states that 85 percent of all accidents are due to some kind of human failure. What percentage of operating problems are due to some kind of human failure? An example of what can be done to reduce operating problems due to personal failure through development of key people took place at one of our mills recently. In one department the superintendent raised the efficiency of the grocery bag machine operations from 93 percent to better than 102 percent. He did this in a simple effective way—he took his key people, which consisted of his assistant supervisor and lead adjusters, and, step by step, using the conference method, took them through the procedure of how to adjust and operate grocery bag machines. This wasn't classroom training, but was held on the job. The procedure was to have a machine thrown completely out of adjustment on Friday night. Then the group came in the next morning when the department wasn't running and developed their step by step procedure. It took about three weeks to complete these sessions and the results are an increase in operating efficiency.

4. Learning the hard way is not the best way.

I know of a supervisor who is the best man in his department. He can do any job in the department better and faster than anyone who works for him. He is mighty proud of this accomplishment. Yet if he would die or retire tomorrow there wouldn't be anyone to take his place in this department of more than 60 people. He keeps all of the valuable information that he has about his job to himself. He learned it the hard way—why shouldn't the others? He is really hurting himself because he is one of the busiest men that I know, burdened down with innumerable details, and he is hurting his company because he isn't fulfilling one of the obligations of supervisors—that of developing replacements.

5. We need to have an organized plan if we are going to continue to attract the kind of people that we need to keep our industries alive.

Our college recruiter told me that the competition for college graduates is really tough. He said that the major companies are very actively recruiting in this area and seeking the same sort of people that we need in our industry. He told me that young people want to enter an organization that offers them a planned opportunity for growth. Unless we are able to offer such opportunities we will not get the kind of people we need to keep our industry alive.

6. We should develop key people for the personal satisfaction we can get from it.

I know of a mill manager whose greatest job satisfaction comes from discovering and developing and improving young people of promise. He takes a keen interest in watching people grow. He is deeply pleased when he sees some young man whom he has helped step up the management ladder into additional responsibility. I think that the most satisfying part of a supervisor's job can be found in the improvement of the people working under his direction.

An Organized Plan For Improvement

There are four steps to any organized plan for improvement of key people. Like four legs of a stool, if you saw off one leg the stool will become wobbly. All are necessary. Here is how they are applied in Crown Zellerbach Corp.:

Step 1. To define the organizational structure, list duties, responsibilities, accountabilities and relationships of all positions in the organization. This has been done in our company through the development of organization charts which show all of the positions from president on down. A second phase is the development of duties and responsibilities outlines covering the various positions. This is being carried on in most of our plants and is a continuing program. This is handled by analyzing a position in terms of what is done and how it is done.

Step 2. Determine the manpower needs of an organization over a period of time, using past history, retirement and probability figures. A formula frequently used is to take the number of people scheduled for retirement during a given period and multiply that by six, which equals the number of replacements that will be needed to fill management positions during the period measured. In our company

the overall job of determining manpower needed is handled by our top management in San Francisco, with each mill manager carrying the responsibility in his plant.

Step 3. Take a management inventory by taking stock of the present management team and those preparing for the team. This is done by measuring the man's effectiveness on his present job, determining his future potential and what is needed to help him improve on his present job and to prepare for additional responsibility. In our company it is the mill manager's responsibility to report to the executive development committee in San Francisco on all people presently in the management group plus those individuals who appear to have the potential to enter the management group. The manager must have prepared an evaluation report which in addition to giving personal data about the individual, reports on his outstanding abilities, his areas where improvement is needed and his future potential.

Step 4. Develop individuals through (1) group training which is helpful to all, such as conference leadership, effective speech and human relations training, and (2) through personalized training.

One example of group training currently being given at one of our mills is a session called "The Management Information Program." The basic purpose is to acquaint supervision with company policies and procedures to give them a clearer understanding of how they may be applied in relation to the supervisor's job. Policies are examined in two ways—to determine what are the main ideas behind the policy, and secondly what are the reasons for the policy. There is a lot of benefit to be derived from this type of program. One of the supervisors who is attending the sessions is 60 years old and has been a supervisor nearly 30 years. He told me the sessions have been helpful to him in gaining an understanding of the thinking of the people who wrote the policies. Another supervisor said that the sessions had been helpful to him because they had made him conscious of the existence of the policies. He said he knew they were there but he didn't use them. A young supervisor just out of the ranks told me he has gained added confidence. He said that he is now able to answer questions which before he either had to pass on to others or give no answer at all. He feels the need for stature with his employes and this is one way of getting it.

A Case History

Here is an example of using a personalized training plan. In one of our departments the assistant superintendent was scheduled to be promoted to another division. His replacement was the third man in the department—a young college graduate who had been a foreman about two years. The first step in developing a personalized training program was to spell out the duties and responsibilities of the position of assistant superintendent. This was done by the superintendent and the assistant superintendent. The foreman sat in on all this discussion to give him a clearer picture of what would be expected of him when he moved up to assistant superintendent.

The next phase was to develop a personalized training program for the foreman so he could get ready for the assistant's job. This was done by taking each duty and responsibility of the assistant superintendent's job and determining what help the foreman needed to carry out each duty and responsibility of the assistant's job. Also determined was who should give the help and when it should be given. Therefore, a personalized training schedule for the foreman was drawn up. It included the following information: The duty or responsibility, what training was planned to improve his performance or get him ready, who should give the training and when should it be given.

This is a program that really works. The superintendent, who was quite unhappy with the performance of the foreman is now quite pleased with the improvement that he is making. The young foreman is really trying to do a good job because he recognizes that his boss is interested in helping him.

To support the fourth leg of this four step program, two things are needed:

1. We need to provide the tools to line supervision to make the program work. We do this through providing them with staff assistants, such as training, safety, accounting and outside training consultants. Development of key people is a line function. It must be kept that way; it can't be delegated to staff people.

2. No program for improving key people will work without stimulation from the top. Our company is not just paying lip service to improving key people. The overall responsibility for the administration and coordination of our program is assigned to the executive development committee. This is composed of six vice presidents. It has a full-time secretary and is providing the stimulant needed to make the program work.

Any company, any individual or supervisor, can start a program of improving their key people without a single printed form, without a specialist to guide it, without formal training, but it cannot be started unless the head of a group of people decides that he is going to devote real interest and time to improving the people in his organization.

At first New England Community Relations Forum, held at Springfield, Mass. (l to r): Henry D. Johnston, Strathmore Paper Co., West Springfield, Mass.; Joseph J. Coote, American Economic Foundation, New York City; James P. Nolan, Oxford Paper Co., Rumford, Me.; Frank Thompson, Champion Paper, Hamilton, O.; Carl M. Fellows, Fitchburg Paper Co., Fitchburg, Mass.; Donald M. Rochester, APPA, New York City.

Community Relations Groups Hold Three Meetings

Three meetings sponsored by the Community Relations Committee of APPA were held in the Northeast and Southeast during May and two other meetings are being planned for the South and West Coast this fall, according to Donald M. Rochester, chairman.

The Southeast meeting, in Savannah May 5 and 6, was featured by the decision to form a permanent organization. The nominating committee to effect this included: W. H. Bailey, Sonoco Products; James Dalton, Austell Box Board; I. Y. East, International; J. Bruce Morford, Champion; Kirk Sutlive, Union Bag; and Justin Weddell (chairman), St. Regis.

The Southern New England Community Relations Forum met in Springfield, Mass., May 19, with 33 mill representatives present. Henry D. Johnston, Strathmore Paper, acted as chairman, and the moderator was Carl M. Fellows, Fitchburg.

Frank Thompson, Champion, spoke on employe relations and educational programs; Joseph J. Coote, American Economic Foundation, on film training; and James P. Nolan, Oxford Paper, described the "flannel board technique" of economic education.

The meeting of the New York State Community Relations Forum met in Syracuse May 21 with 25 representatives from New York mills. Chairman was T. Stewart Foster, Foster Paper; and David C. Knowlton, Knowlton Bros., acted as moderator. The same speakers were here as at Springfield.

A meeting is planned in cooperation with International Paper Co. in or near Shreveport, La., in October, and another for the West Coast at some date in late September.

Chicago Tappi Elects Berg as Chairman

Officers for the Chicago Section of Tappi elected at the May 18 meeting at the Chicago Bar Association: Chairman, E. C. Berg, Ace Carton Co.; vice chairman, J. D. Johnson, Container Corp. of America; secretary, James Lyons, Atlas Boxmakers; treasurer, J. J. McIntyre, H. B. Fuller Co.

THE NEW VA-PURGE PROCESS

FAVORABLE RESULTS AND COST FACTORS DISCLOSED

SOME CLOSELY-HELD SECRETS of "Va-Purge," a new technique in chemical pulping developed and patented by Pulp and Paper Research Institute of Canada, were revealed at the 1953 summer meeting of the Technical Section of CPPA at Saranac Inn, New York, June 4-6. The disclosures were considered so important a whole day and one-half was devoted to discussion of the process.

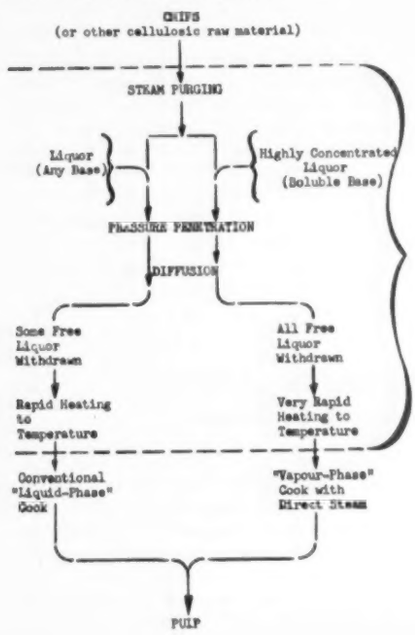
Over 300 industry men from Canada and the U.S. were on hand to participate in the program.

Va-Purge consists of a basic modification of conventional methods which calls for a pre-treatment process of the wood chips whereby air is evacuated from the chip cells through a rapid build-up of pressure by steam followed by a rapid release from this pressure. It has been found that steam ejected during the the "purge" release carries with it other substances besides air which impede liquor penetration. Evacuation of air and these substances permits fast and complete liquor penetration, shortening cooking time, and producing increased yield and greater uniformity.

Co-inventors of the Va-Purge process are Drs. Otto Maass and James H. Ross and Messrs. John S. Hart and Richard K. Strapp, all of the Pulp and Paper Research Institute staff. The Institute's original efforts began in 1934 with sulfur dioxide as the gas used to remove air from the chips. First work with steam as the agent began in 1947.

The process is patented under U. S. Patent No. 2,260,744 issued June 2, 1953. Patents are pending in Canada and 22 other countries. Under the licensing arrangement set up by the Institute 45 companies now hold licenses in Canada, 7 in the United States, one in Finland and one in New Zealand.

FLOW SHEET SHOWING VA-PURGE IMPREGNATION PRE-TREATMENT AND SUBSEQUENT COOKING TECHNIQUES (the steps shown between dotted lines in the pre-treatment phase).



The four men responsible for inventing Va-Purge process (l to r): J. S. Hart, R. H. Strapp, Dr. Otto Maass, and Dr. James R. Ross, all of Pulp & Paper Research Institute of Canada.

Licensing calls for an initial fee payment upon execution of the license. This is calculated at a specified rate in cents per short ton against the entire production of finished chemical and semi-chemical pulps produced under the control of that company in the calendar year preceding execution of the license. In the case of a new mill under design or construction for a company that has not been a pulp producer, the fee is calculated against the certified rated capacity for pulp production of that new facility.

The licensee company also agrees to pay a royalty to the Institute whenever it used the Va-Purge process in commercial production "calculated at a rate, again in cents, per short ton per year on the pulp produced using Va-Purge over a period of five years beginning from the date of such regular production." There is also an agreement that the Institute will assist companies in pilot plant, or mill trials, etc.

Schedule in cents on short ton basis of license fees and royalites for Va-Purge follows:

	Initial fee	*Royalty*
Canadian cos. and U.S. affiliates—initial licenses who financed Va-Purge development	3	7
Canadian co. member in CPPA or U.S. affiliate of a Canadian licensee	3	10
Canadian co. not a member of CPPA	10	10
Co. outside Canada not associated as above	10	20

Following is a list of companies licensed as of May 15, 1953:

Canada

Abitibi Power and Paper; Alliance Paper Mills; Anglo-Canadian; Anglo-Newfoundland Development; Bathurst Power & Paper Company, Limited; Brown Corp; Bowater's Newfoundland; Canada Paper; Canadian International; Consolidated Paper Corp.; Donnacona Paper; Dryden Paper; E. B. Eddy; Fraser Companies; Gair Co. Canada; Gaspesia Sulphite; Great Lakes Paper; Hinde & Dauch; Howard Smith Mills; Howe Sound Pulp; KVP Ltd.; James Maclaren; Macmillan & Bloedel; Marathon Paper Mills; Mersey Paper; New Brunswick International; Ontario-Minnesota Pulp and Paper; Ontario Paper; Pacific Mills; Powell River; Price Brothers; Provincial Paper; Quebec North Shore; Restigouche; Spruce Falls; and St. Lawrence Corp.

United States

Brown Co.; Champion-International; Robert Gair; Hinde & Dauch; Minnesota and Ontario; Peter J. Schweitzer; and Rhinelander Paper.

Foreign

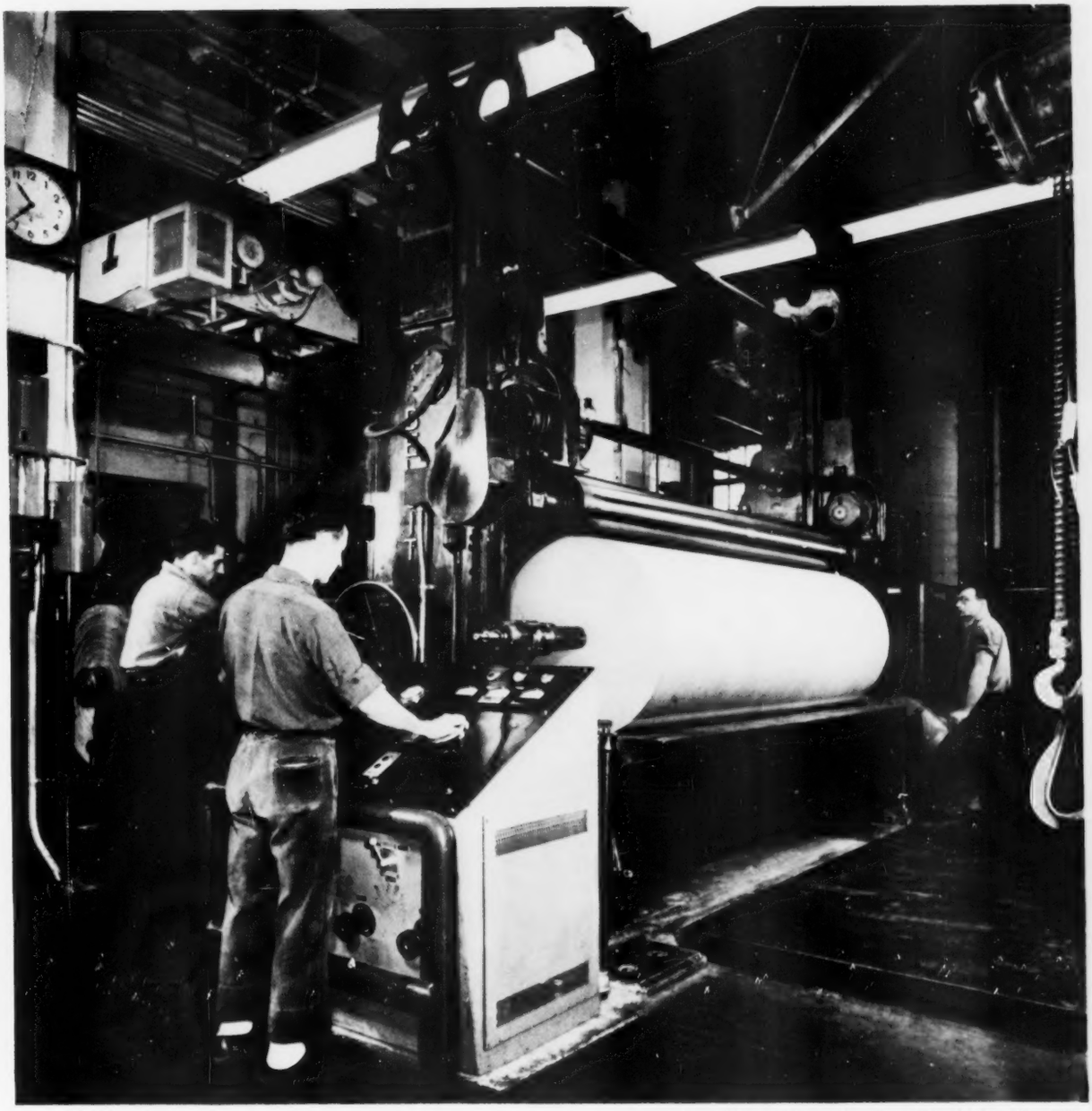
Viiala Oy, Finland; and Tasman Pulp and Paper, New Zealand.

Problem of Penetration

Dr. Maass, general director of the Institute, explains that efficient chemical pulping requires thorough penetration of cooking liquor into the wood, and the early experiments at the Institute showed that pre-evacuation to remove air definitely helped to accomplish this. Following early experiments with sulfur dioxide as the agent, steam began to be used for its more practical utilization.

"Steam," says Dr. Maass, "has an advantage over sulfur dioxide apart from the obvious ones of its availability and its applicability to any cooking liquor including those of alkaline nature. The added advantage is that when the air-filled chips are subjected to steam pressure, prior to impregnation, their temperature is raised."

In describing the Va-Purge method, Dr. Ross says "the Va-Purge process is primarily a pre-treatment process. That there are unexpected benefits other than the mere removal of air is apparent from



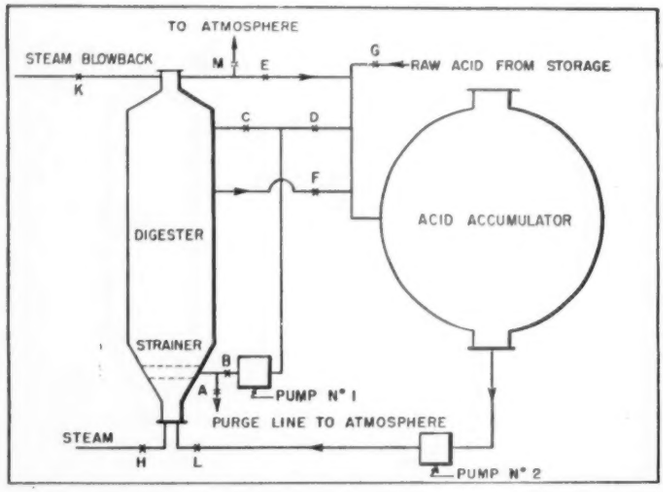
Cornell Paperboard Products Co., Milwaukee, Wis.

GOOD SHIPPING ROLLS of paperboard, tightly started and uniformly hard, are made by Beloit High-Speed Winders because: 1) the Beloit paper run permits tightness control by individually driven winder drums, 2) weighting by heavy driven rider roll is operator controlled, 3) the Beloit water-cooled unwind-stand air brake permits full control of sheet tension, and 4) the shear slitters cut cleanly.—*Beloit Iron Works, Beloit, Wis.*

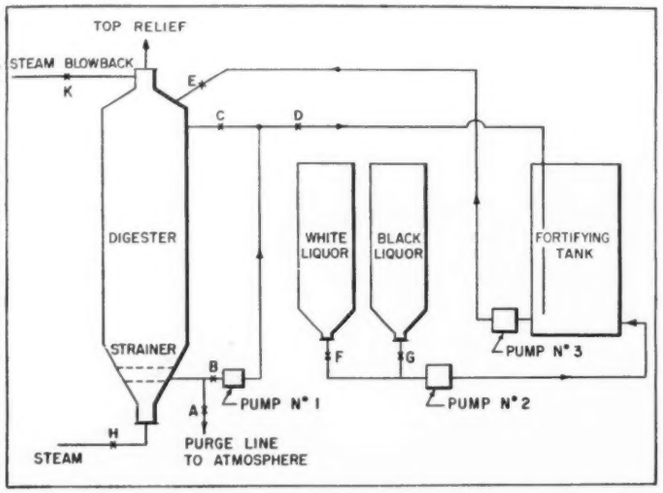
WHEN YOU BUY BELOIT...YOU BUY MORE THAN A MACHINE!

BELOIT

PAPER MACHINERY



VA-PURGE PROCEDURE FOR A SULFITE OPERATION. Steam pressure is built up through valve H. Valve H is closed and A opened. Repeat for second purge. Digester filling pump 2 pumps acid from accumulator to digester through valve L and pump 1 may operate the circulating system through valve C. Any built-up steam pressure may be relieved through valve M. Before pumping is completed M is closed and E opened. Filling pump is not shut down until 3 minutes after liquor is picked up at head relief. Valve L will be closed before pump 2 is shut down. Steam valve K is opened to provide pressure during impregnation. After impregnation K is closed and cooking starts. At the same time pressure is built up, the side relief is removed through valve F. If a soluble base is being used and a lower acid-to-wood ratio than with a calcium base is required, then excess acid may be removed through pump 1 and valve D to the accumulator before starting the cook.



VA-PURGE PROCEDURE FOR A KRAFT OPERATION. Steam pressure is built up through valve H, then valve H is closed and valve A opened. This may be repeated for a second purge. The digester is then charged with liquor made up in the fortifying tank. Pump 3 is not shut down until 3 minutes after liquor has appeared at the head relief. Valve E will always be closed before pump 3 is shut down. Steam valve K is now opened to provide pressure for the impregnation step. During impregnation, liquor charge for the next cook is pumped to the fortifying tank by pump 2. At end of cycle, valve K is closed and valve D opened. Pump 1 is started to withdraw liquor to the fortifying tank to mix with what is already there.

the fact that a most efficient diffusion of chemical into the treated tissue takes place when the steam-purged material is submerged in cooking liquor. Moreover, the steam ejected from the purge, when condensed, is found to contain a number of substances which could and may hinder normal penetration of the wood of certain species, notably jackpine heartwood."

There are three steps in the process:

1. *The Purging Cycle.* Purging by steam is done in a pressure vessel already loaded with chips. There is a rapid build-up of pressure to a pre-determined level followed by a rapid release of pressure to a pre-determined lower level. The purging cycle may consist of any number of separate purges, each one removing some air from the vessel and the chips. A desirable, but not necessary, part of the operation is pre-steaming of the chips at atmospheric pressure during digester filling before purging.

2. *Liquor Charging.* Cooking liquor must be introduced, probably under pressure, without permitting re-introduction of evacuated air. It may be most practical to have liquor forced upward through the digester from the lower part of the charge.

3. *Penetration Cycle.* Liquor must be filled to digester capacity or at least to cover the chips, and a pre-determined pressure is maintained. As liquor penetrates the chips, more liquor is added to keep the liquid level over the chip top. At temperatures above or near 80° C considerable natural penetration is complete in about 10 minutes, and this penetration can be extended by lengthening the time cycle if it is considered desirable.

According to Dr. Ross, this treatment makes it possible to go into the cooking cycle with a quick rise of temperatures to the proper cooking, maximum without "burning." "The purged wood is penetrated with a liquor of sufficient strength of chemical so that through natural and forced penetration the wood will have taken up during the impregnation cycle sufficient chemical to be completely pulped at an appropriate temperature. The liquor external to the chips may then be withdrawn and pulping carried out by surrounding the impregnated chips with an atmosphere of steam at the proper pressure."

Using Conventional Equipment

Trials of the Va-Purge process have been made in mills using kraft, sulfite, straw, soda, and semi-chemical processes of pulping. It has been found, according to Messrs. Hart and Strapp, the other two inventors, that conventional equipment can be used in pre-steaming by providing adequate steam flow into the digester at the time of loading with chips. In unmodified digesters the pressure level for the first step of purging may be reached in 20 or more minutes but the rapid relief called for in the second step cannot be achieved without some major alterations in conventional equipment. This may mean tapping of liquor circulating systems for the relief, or additional strainer capacity may be needed to speed up the process.

Charging with liquor and pressure impregnation is said not to cause difficulty. Pressure should be approximately 20 psi for rapid penetration and this can be reached by applying steam pressure to the top of the liquor by a blow-back line connected to the top strainer. Forced penetration takes place in two to three minutes, but a longer time is necessary for natural impregnation.

In digesters equipped with circulating systems there is no problem in withdrawing excess liquor after the penetration cycle and before cooking.

An important point is that "the concept of withdrawing and removing some of the excess liquor after penetration leads, logically, to increasing the initial concentration in order to reduce the final volume below that normally used."

Commercial Results With Va-Purge

R. R. Edwards, vice president of Pacific Mills Ltd., said that in their use of Va-Purge pre-treatment in a conventional calcium bisulfite process with a few modifications of equipment they found possibility of improvement in quality, to a limited extent in yield, maximum cooking temperatures were lowered and produced a pulp with a slightly higher chlorine number. The overall increase in production through increased digester packing and other improved techniques with Va-Purge amounted to approximately 20% with about 12.5% probably due to Va-Purge pre-treatment.

W. H. Palm, vice president in charge of production and Henry J. Ostrowski, chief chemist, Hinde & Dauch Paper Co., Toronto, reported that in extensive work of Va-Purge with straw pulping they had found digester yields up from 60% to 70%, and overall cooking cycles reduced from 10 hours to 6¾ hours. There has been a freer refined stock with ability to speed up the paper machine, and quality has been increased so that it was possible to decrease the weight of the regular grade of strawboard from 32 lbs. per M sq. ft. to 26-27 lbs. while realizing a 15% increase in the ring crush test. Chemical usage has come down, they report, and six digesters now do what ten did previously.

T. W. Houghton, assistant mills man-

ager, Canada Paper Co., Windsor Mill, Quebec, described lab results with Va-Purge which showed a substantial reduction in rejects and use of chemicals—in the case of rejects producing only one-fourth as many and with 15% more screened pulp and using 15% less chemicals.

W. G. Hartford, assistant production manager, Champion-International, Lawrence, Mass., said that in their experiments with Va-Purge on soda pulps using hardwoods they had estimated a total potential mill production increase from 42 to a maximum of 63 tons per day using the same digester capacity.

E. G. Wilson, sulfate superintendent, KVP Ltd., Espanola, Ont., disclosed that trials at this mill had been wholly inconclusive, and the feeling there that for true tests permanent installations for the Va-Purge process would have to be made.

L. R. Beath, assistant to mill manager, Price Bros., Riverbend Mill, said trials had shown excellent uniformity of cooking both within the chips and throughout the digester as a whole, but that the tests were on a small-scale.

R. J. P. Keswick, general superintendent, Bathurst Power & Paper Co., described commercial runs on kraft cooks with little adaptation needed to conventional equipment. According to Mr. Keswick, "these trials have shown conclusively that there is every possibility of producing successfully a good quality pulp by using the vapor-phase technique on a mill-scale basis. The advantages dollar-wise are particularly interesting from a point of view of steam consumption, cooking time and increased production."

It was disclosed that Dr. Ross has discovered a new way of achieving rapid and complete penetration of the wood chip prior to cooking. In pilot model digesters practically identical results have been reached as with Va-Purge and in ways that may prove commercially more economical. The new process is known as Va-Press, and patents are pending for it in Canada, the United States and several foreign countries.

SCHEDULE FOR NEW SOUTHERN MILLS

RAPID PROGRESS is being made in erection of new mills in the Southeast.

National Container Corp.'s new mill near Valdosta, Ga., has a target completion for sometime in November with much evidence pointing toward success. At the close of May the Goslin-Birmingham evaporators were standing, the Combustion Engineering power boiler had drums up, one of two Allis Chalmers lime kilns was in place, and Ingalls Iron Works had a number of tanks completed. Chicago Bridge had delivered the digesters.

Auxiliary buildings for the mill were close to completion at the beginning of June. Melvin Farris, pulp mill superintendent, is at the mill daily, driving from his home in Jacksonville.

At Foley, Fla., the Graner Tank & Mfg. Co. digesters and enclosing building were reaching completion, and erection underway on other structures planned by Buckeye Cellulose Corp. for its dissolving hardwoods pulp mill. Several extra large concrete tanks for the operation had been completed. Buckeye acquired the extensive forest lands of Brooks-Scanlon, Inc., of the same ownership as Powell River, in British Columbia, and the large lumber operation at Bend, Ore.

St. Joe Paper Co., Port St. Joe, Fla., is scheduled to produce paper commercially in July.

Rome Kraft Corp.'s mill at Rome, Ga., continues on slow schedule.

In early June, the widest paper machine in the United States started up. This is the Bagley & Sewall 270 inch (wire width) Fourdrinier making fiberboard and paperboard at Continental Can Co's Hopewell Va., mill. It is designed for 1500 fpm.

WEST COAST PULP MEETING

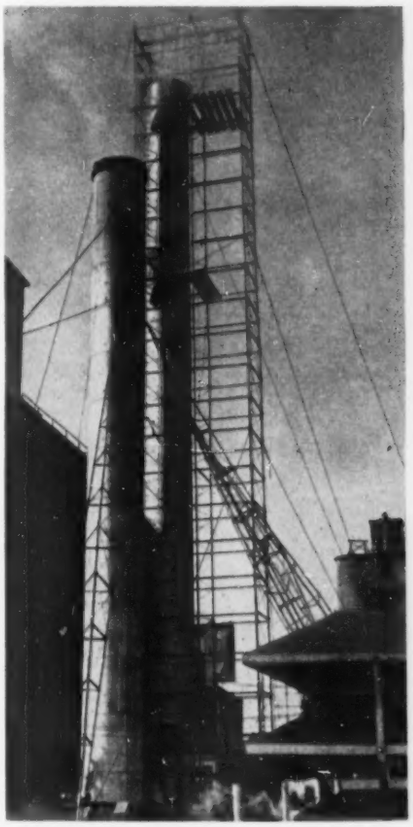
Tentative plans have been made for a meeting of the United States Pulp Producers Association in the Pacific Northwest for Tues., Sept. 15 with exact date and complete details to be disclosed later, according to James L. Ritchie, executive director. Preliminary agreement on the time and place was reached by the group at its annual meeting in New York in February.

At the same time it has been suggested that the Forest Policy Committee of APPA plan a West Coast woods operations three-day tour to coincide with the Pulp Producers meeting date and place. This tour would be similar to that sponsored by the Forest Policy Committee in the South in Oct. 1952, and to a previous one held in Wisconsin in Oct. 1951. The tentative proposal would call for the woods tour to begin after the Pulp Producers meeting so that the two groups could join for these visits.

Objective of the tour of woods operations is to show paper mill operators at first hand, and particularly those with non-integrated mills, the plentiful supply of wood and pulp, and how this continuing supply has been secured by sound forest management policies of the pulp producing companies of the area.

Invitations to the groups have been extended by most of the large operators in the Northwest, so if the plans materialize a full program of activity and sightseeing is assured.

HIGH STACK RAISES EFFICIENCY



INCREASED HEIGHT of stacks at International Falls, Minn., Steam Plant of Minnesota & Ontario Paper Co., has improved operating efficiency and lifts smoke and cinders higher. These stacks serve new Boilers No. 6 and 7. They originally rose 113 ft. above ground. Welded steel extensions bring them to 143 ft.—30 ft. added. Extension was made of 5 ft. sections, delivered to boilerhouse roof in half sections which were welded together on roof, making 7 ft. dia. cylinders. JOHN MANDELIN was Project Engineer under RAY NELSON, Plant Engineer.

Contractor Chosen For East Texas Mill

The East Texas Pulp and Paper Co. and its consulting engineer, H. A. Simons, Ltd., Vancouver, B.C., announce the selection of Tellepsen Construction Co., Houston, Tex., as general contractor to construct the new bleached kraft pulp and paper mill at Evadale, Jasper County, Tex. The work will be done by Petro-Chem Constructors, a division of Tellepsen.

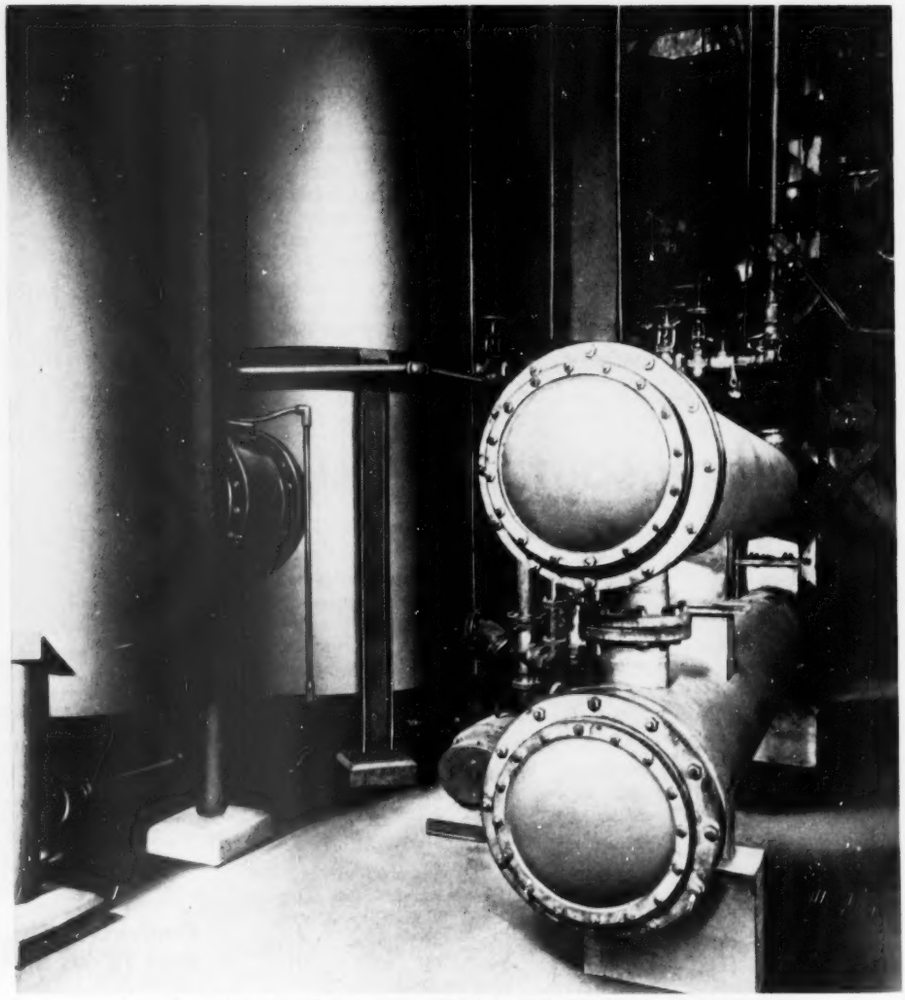
The number of construction men will vary from 250 to over 400. The permanent mill payroll will be approximately 250 men exclusive of woods operations.

Camas Research

The Central Research Department personnel of Crown Zellerbach Corp. has virtually doubled in five years since Dr. Wendell Moyer became director and new facilities have been added at Camas, Wash. It now totals 43 research workers and ten stenographers and assistants.

CHEMIPULP—K. C.

SO_2 GAS COOLING



Spray Type Cooler Installation at the mill of the Oxford Paper Co., Rumford, Maine

¶ The system consists of two towers, a heat exchanger, circulating pump and a weir box for water level control. The primary tower is made of carbon steel with a lead lining next to it on the inside and then inside the lead lining, ceramic lining set in a silica type joint material. For inspection and repairs a manhole is provided in this primary tower and also in the secondary tower. The secondary tower which is considerably larger than the other is made of chrome nickel steel and has a removable grating of chrome nickel steel to support the ceramic packing which normally consists of spiral packing rings or preferably cross partition packing rings. This secondary tower is furnished with two manholes—one above the ceramic packing and one below. The connection between the two towers is made with a removable section and is lined with lead and acid proof tile similar to the lining in the primary tower.

¶ Hot gas from the combustion chamber enters at the top of the primary tower and as it travels down through the tower is sprayed with cooling water. Upon contacting the spray the

in the SULPHITE PROCESS

temperature of the gas is instantaneously dropped through the critical range of SO_3 formation to the wet bulb temperature of the gas. A large percentage of any SO_3 which may be present is absorbed by the cooling water which collects at the bottom of the tower where the level is controlled by means of a weir box, the overflow going to the sewer. Very little SO_2 is retained by the water to the sewer and results from actual operation show that the loss is less than one pound of sulphur per ton of pulp.

¶ The gas, cooled to approximately 155° F. passes into the lower portion of the secondary tower where it is met with another spray, completing the cooling. As the cooling water from this tower carries some SO_2 it is passed through a heat exchanger and the cooled water recirculated through the tower. Part of this water however is used for the spray in the first tower. To maintain the water level in the secondary tower, make-up water is added in the weir box from the water supply and with normal operation the flow is always into the tower.

¶ In case of either power failure or stoppage of the circulating pump for any reason, a safety switch and solenoid operated valve are so arranged that the valve will open a fresh water supply for the spray in the primary tower to prevent damage to the equipment from overheating. Cooling at this time in the second tower is through a manually controlled valve in the cold water supply.

¶ As previously stated connections are made from both towers to a weir box. This box is fitted with a hood so that any gas which may be released can be removed through a vent. While sublimation has no effect on the operation of the system its presence can be detected immediately by the condition of the water in the overflow from the primary tower. An observation glass is provided in the hood for inspection purposes.

¶ The system has the advantage in that it occupies very little space, is free from leaks, with all connections easily accessible and operates with practically no maintenance or attention. Loss in SO_2 is extremely low and the rapid preliminary cooling reduces the formation of SO_3 the greater percentage of which is absorbed by the spray in the first tower. Very little make-up water is required and the hot water produced in the heat exchanger can be used for pulp washing or for any other purpose where clean water is necessary.

★ **This article is the second of a series being published by Chemipulp Process Inc. in PULP & PAPER magazine in the interest of generally improving the sulphite process. Correspondence regarding or discussing the articles will be welcomed.**

A LIMITED NUMBER OF A REVISED EDITION OF "CHEMIPULP SULPHITE MILL OPERATION," THE HANDBOOK OF PRACTICAL OPERATING PROBLEMS WILL BE AVAILABLE UPON COMPLETION OF THIS SERIES OF ARTICLES.

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NEKOOSA EXPANSION

BASED ON COORDINATED LONGTERM PLANS

COORDINATED, LONG-TERM PLANNING in both manufacturing and sales is the basic explanation for the five-year-long, multi-million dollar expansion program of the Nekoosa-Edwards Paper Co.

The program in the Nekoosa, Wis., mill of Nekoosa-Edwards started at the kraft mill with a new bleach plant and has now been climaxed with the addition of the new No. 9 machine, a 180-inch Fourdrinier, the largest, most modern and most versatile of the five machines now at its Nekoosa mill and the four at its Port Edwards sulfite pulp and paper mill.

This program included expansion of the Nekoosa kraft mill, raising its capacity from 150 to 200 tons a day, of which 150 tons is bleached and the remainder unbleached and semi-bleached. It also includes new steam generating and electrical producing units at Nekoosa, providing power facilities now adequate to take care of all company requirements. It is being completed with new finishing and handling equipment at Nekoosa and addition of a sixth stage of bleaching with an all stainless steel washer already delivered. Total company papermaking capacity has been brought to approximately 110,000 tons annually.

The long-term sales program, according to A. C. Remley, vice president in charge of sales, is based on two very elemental characteristics of human nature.

"One of these is thrift—the desire to get the best possible price is a manifestation of it," Mr. Remley declared. "It is the reason for many of our customers looking to us for additional tonnage in unwatermarked fine paper grades. It is the basis for what I call our 'price' sales program.

"The other characteristic is the natural resistance of people to change—especially when they are satisfied with what they are getting. This is elemental, too. It is the reason for the steady growth of our sales in watermarked fine paper grades. It is the basis for what I like to call our 'customer acceptance' sales program.

JOHN E. ALEXANDER, President and Gen. Mgr. —"Our expansion is based on complete integration — forest to products."

A. C. REMLEY (left), Vice President in charge of Sales, who says expansion has increased ability to meet demand for Nekoosa mill products.
F. GEORGE KILP (right), Manager of Woodlands Operations, whose 25-year forest farming program has provided solid foundation to Nepco expansion.

NEIL E. NASH (left), Vice President, and CHARLES H. REESE (right), Vice President in charge of Manufacturing, Nekoosa-Edwards Paper Co. Both are veterans in Nepco service and Mr. Reese supervised the five-year program of expansion.

"What our expansion program has done for us is to give our kraft mill the flexibility and increased ability to meet both these demands. There also has been a strong, growing demand for our specialty wrapping grades. We have not added this big, new machine and carried out this expansion just to be bigger—the customers asked for it, in fact demanded it," Mr. Remley concluded.

J. E. Alexander's Comment

John E. Alexander, president and general manager of Nekoosa-Edwards, told PULP & PAPER:

"It seems very significant to me that our company has almost 2,000 employes and slightly more than 2,000 shareholders —almost equal numbers—who are from all walks of life, and mostly in Wisconsin towns. We are able to assure both of these groups that our expansion is based on the solid foundation of complete integration from the tree to the finished products.

"We have added to our forest holdings so they now total more than 120,000 acres, and this is our raw material insurance for the future. Our sales in 1952 were more than $24,000,000, the highest in the company's history, and with the new No. 9 machine we look forward to substantially increased tonnage in the future."

Wood Behind the Expansion

F. George Kilp, manager of woodlands operations, has headed the reforestation and wood procurement program since Nekoosa-Edwards pioneered industrial forestry on a commercially practical scale in the Middle West more than a quarter of a century ago.

The forestry program is already beginning to supply an important portion of Nekoosa-Edwards' wood requirements and the company will become increasingly self-sustaining as far as wood supply is concerned in the foreseeable future, except for some spruce. The use of aspen has been doubled since the war and native birch is also being utilized. The kraft mill is fully integrated and substantially enlarged to provide the pulp requirements for additional tonnage.

Wood production has more than doubled by use of sound farming methods on company timber lands. Records show that one cord per acre per year is the average yield, as compared to about $^{3}/_{10}$ of a cord in wild, undeveloped areas in Wisconsin.

SHAREHOLDERS MEETINGS have been very successful at Nekoosa-Edwards Paper Co. Held right at mill town, these individual shareholders—they come from many Wisconsin towns and many walks of life—are getting a first hand view of their property. Richard A. Nugent, now charged with Planning, is showing them some of the new equipment.

For years Nepco has been planting trees by the hundreds of thousands, but if anyone smiled about it years ago, they don't any more. One of Nepco's tree nurseries, just across the Wisconsin River from the mills at Port Edwards, now includes approximately 48 acres with nine and one half million seedling transplants making it the largest private pulpwood nursery in the Lake States. And in the growing areas elsewhere tens of thousands of trees are being field planted from the transplant beds. Mr. Kilp's staff of foresters has been ingenious in developing new types of tree planters, attracting national attention of the industry to its achievements. In addition to two-row hydraulically controlled field planting machines, the company this year announced a five-row transplanting machine capable of transplanting 80,000 seedlings a day in nursery operation.

Nepco's woodlands are in two areas, each approximately 60,000 acres in size. One is in Oneida county, north central Wisconsin; the other on the sand plain of central Wisconsin within truck haul of the mills. Hardwoods, spruce, balsam and pine come from the north; mostly pine from the central area. Much barren land for planting has been purchased. Nepco brings in wood also from Minnesota and Michigan, and some from Montana where it has been a sponsor of pulpwood logging. But every acre that has been put on good forest practice in Wisconsin is reducing the need for high cost, long, freight hauls of pulpwood.

NEKOOSA-EDWARDS Executives (l to r): J. K. VANATTA, Manager of Purchases; C. C. PARVIN, Production Mgr.; RICHARD A. NUGENT, charged with responsibilities in Planning for expansion and improvement of both Nekoosa and Port Edwards mills; and BERT L. KASSING, Director of Process and Product Development, who was directly involved in No. 9. Machine project development.

OTHER NEPCO Executives (l to r): C. M. SIGVARDT, Gen. Supt., Nekoosa Mill; A. L. SARVER, Nekoosa Paper Mill Supt.; F. H. COLDWELL, Mgr. of Mill Power where part of expansion took place; DR. TRUMAN A. PASCOE, Research Director, and DR. H. W. ROWE, Technical Director.

The Expansion Program

Charles H. Reese, vice president in charge of manufacturing, has been with Nekoosa-Edwards for 18 years. He led the difficult job of conversion to the watermarked line of sulfite bond and writing papers in the Port Edwards mill prior to World War II, and has also had responsibility for the recently completed five-year expansion program of the Nekoosa mill.

The big, new No. 9 machine was made for more versatility and a potentially wider range of products. The machine itself is built for long runs, thereby releasing the smaller machines for the more numerous changes required by colors and specialties. A feature of the machine is its new design watermarking device with pneumatic control for each marker either at the second or third press.

Improved working conditions were a prime consideration in the entire program. Ample space, good lighting, and improved ventilation are special features of the program.

B. L. Kassing, director of process and product development, handled liaison between management and the contractors and equipment manufacturers in the new machine project. Many novel features of this machine set it off from others that have been described in these pages.

Charles T. Main, Inc., Boston, was the consulting engineering firm for the entire project and C. R. Meyer and Sons of Oshkosh, Wis., were general contractors, both of these companies having had a long experience in pulp and paper projects.

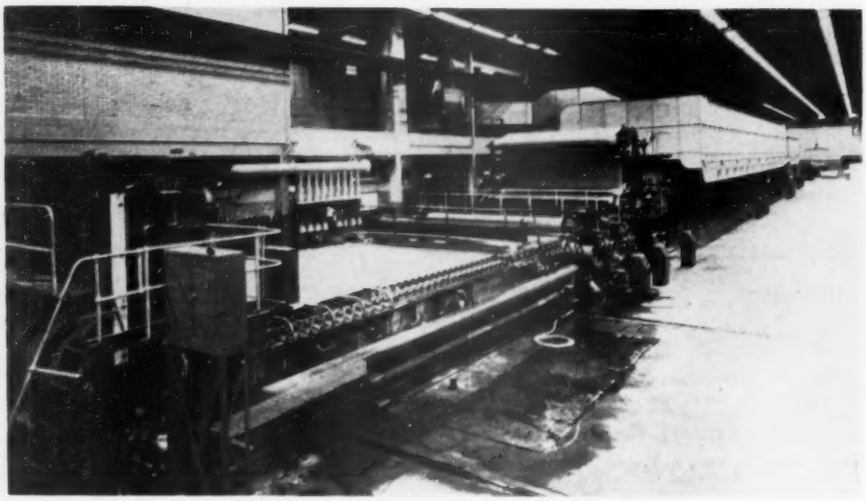
Company officials plan to mount a bronze plaque near the head end of the new machine, bearing a bust of L. M. Alexander, founder of the company, dedicating the machine to his pioneering spirit. "The Pioneer," it is expected, will be the accepted name for the machine.

NEKOOSA-EDWARDS DIRECTORS are quite naturally interested in the wood resources of their company. Nepco has pioneered nurseries and wood farming in the Lake States. Here are four directors looking over a wood stack (l to r): WALTER RADKE, Treasurer of the company; NEIL E. NASH, Vice President; R. J. KRAUT, who is also President of Giddings & Lewis Tool Co., Fond du Lac, Wis., and A. S. PUELICKER, who is also President of Marshall & Ilsey Bank in Milwaukee.

Paper Machine and Auxiliaries

The machine has a drive range of 400 to 1,200 f.p.m. and has so far been operated at speeds up to approximately 1,000 f.p.m. The speeds already attained are appreciably in excess of top production speeds on other machines in the mill making comparable grades.

There have been so many paper machines and machine rooms described in these pages, particularly since World War II, perhaps it would be more interesting this time to dwell only on some of the things that are more or less new or novel about Nepco's No. 9. It is getting so there is really little that can be called new in the paper industry, without fear of contradiction. So many people in so many places are doing new things. But to a



GENERAL VIEW OF NEW NO. 9 MACHINE built by Pusey & Jones Corp. for Nekoosa Mill. It is 180-in. Fourdrinier. This view shows Flowspreader inlet at left and back of Foxboro panel at headbox for fan pump speed and valve opening. Ross Engineering provided hood and air system. Lighting is especially excellently arranged.

PULP & PAPER editor these seemed to be features worthy of mention:

First, the exceptional size of the room, with plenty of safe working space. The machine room is 430 ft. long, 65 ft. wide (the machine body itself, not counting motors, etc. is 15 ft.), but it is definitely not built for a future additional machine. The inside height of the machine room is 34 ft., and the basement is 20 ft. high.

It has set a new standard for the industry with lighting by fluorescent tube, with level of illumination adjusted to requirements of different work areas. A novel lighting arrangement has been built right into the hoods.

Not a big item—but nevertheless interesting—is a shoe-store type of ladder, with wheels running on both upper and lower rails or tracks, along side the machine front side. This is a contrivance to help operators and maintenance men get at the machine jobs.

An elaborate Ross Engineering air and ventilating system includes an unusual special duct for summer cooling along the front of this machine. The hood is of Transite in a light tan color.

The extensive use of stainless steel in piping connections and equipment is not to be overlooked. This is found all the way from the new E. D. Jones Pulpmasters which are taking over the older beater room, the new Morden Stock-Makers battery, the DeZurik consistency control, the Noble & Wood Mammoth Jr. Jordans, the Bird Dirtecs and Nichols Vortraps, to the connections with all pumps, including the large fabricated piping for Allis-Chalmers fan pump. This stainless is all Type 304 Tri-Clover Zephyrweld. All machine parts touching stock are stainless.

Unusual is an air-operated valve down at the backtender's end of the machine where he can change weight of paper by the valve, which changes position of the stuff-gate. Of course, the machine tender also can adjust the gate from his footboard. And this stuff-gate is not at the stuff-box, as customary, but in the basement in order to eliminate introduction of air into the stock. From here stock is cleaned in primary Vortraps. Bird Dirtecs are used for secondary cleaning.

The individual drive units on the backside of the machine, with Hypoid-type gears, General Electric helper motors, Airflex clutches and belts on tapered-cone pulleys, are housed in square enclosures, for safety. These safety guards or housings have removable panels and are painted green. All auxiliary machines and paper machine parts are painted dark green except dryers, which are painted aluminum to reduce heat radiation. The machine room upper walls are light green for high reflectance. The lower part of the walls are in two shades of brick.

An improved Pusey & Jones flowspreader delivers stock to the open headbox and slice and here there are more adjustments possible than usual. The top lip is motor operated for lifting and lowering. The upper and lower slice lips are both movable in the machine direction.

The Puseyjones Rapi-drape arrangement on the Fourdrinier section is now well known in the industry for its easy and quick wire change provisions, without removing the Fourdrinier proper or requiring detaching many connections. But an improvement is the special arrangement to support the tending side end of the 36-in. Downingtown suction couch roll directly from the main side frame, eliminating the conventional back side cantilever shaft extension. A Sinclair dandy roll and lumpbreaker roll are here.

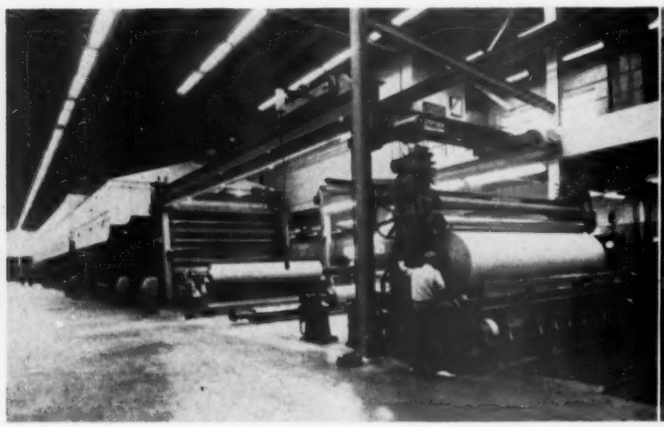
All operations for placing the undercarriage in position for wire changing are hydraulically controlled. The breast roll is supported by two Hydromotors which swing it back under the main frame while the undercarriage runs the wire onto the machine. These motors then return the breast roll to the operating position where it is locked into place by two swing bolts.

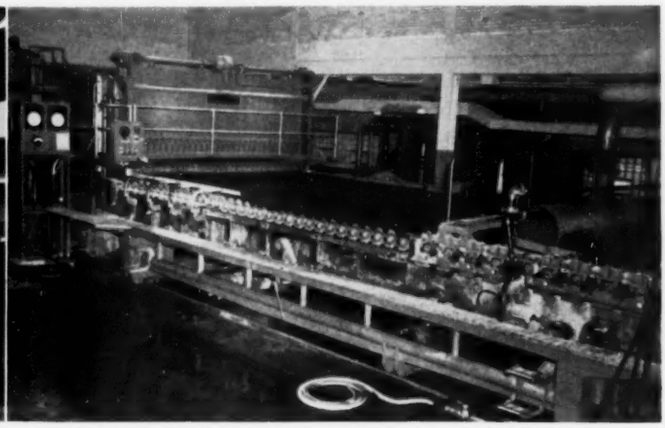
The new type of watermarking device to be used either at the second or third press is notable for its pneumatic controls and design. The first and second presses have a 30 in. Downingtown suction press roll covered by Manhattan and 28 in. Stowe-Woodward Microrok covered top rolls. All top press rolls are Stowe-Woodward Microrok, including the size press. A total of 71 rolls were supplied by Stowe-Woodward. Plain rolls are used in the third press. The third press felt is reversed for finish and a plain bottom press roll may be used in second press position when desired.

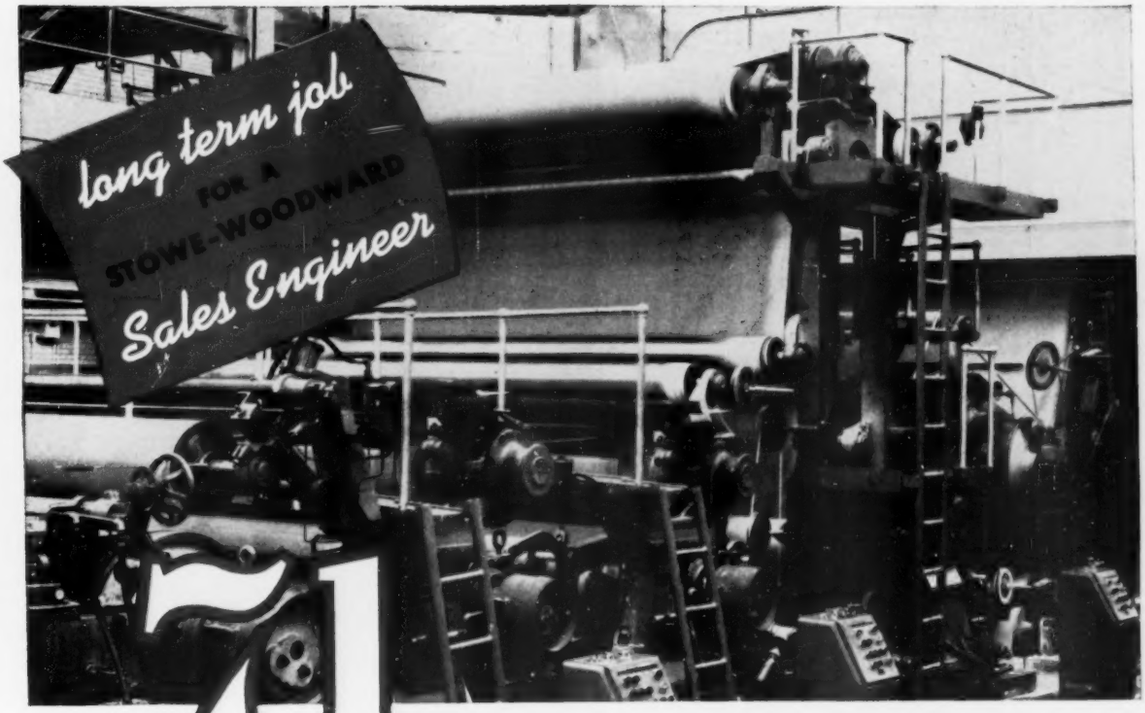
Bird Machine Co.'s 3-shoe Vickery felt

DRY END OF NEW NO. 9 PUSEY & JONES Fourdrinier at Nekoosa. Eight-roll calender stack has Lodding hydraulically oscillated doctors. Reel handles 48 in. dia. rolls. Cameron winder at right, has belt to drive riding roll which is quieter and smoother than older types. Reliance Electric & Engineering 125 hp. motor drives winder.

VIEW FACING INLET and Fourdrinier section of new No. 9 machine at Nekoosa. At left of inlet is Foxboro panel for fan pump speed and valve opening. Dandy roll is at right and Dirtecs and Vortraps are across machine, both for cleaning stock.







71 STOWE-WOODWARD ROLLS

in Nekoosa-Edwards' NEW No. 9 Machine

For as long as Nekoosa-Edwards' new Puseyjones-built No. 9 machine is in operation, Stowe-Woodward's sales engineer has a job to do. On each visit to Nekoosa-Edwards' plant he'll check on the performance of the 71 Stowe-Woodward Rubber Covered Rolls with which the machine is equipped. Well aware that Stowe-Woodward's reputation is built on rubber roll *performance*, he often makes more calls after a sale than before it.

These continuing performance check-ups have played an important part in the outstanding performance of Stowe-Woodward Rubber Covered Rolls . . . performance which has made them known wherever paper is made as the

"Rubber Rolls With a Reputation."

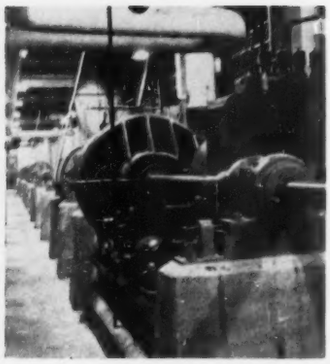
S-W INC.

STOWE-WOODWARD, Inc.

Craftsmen in rubber

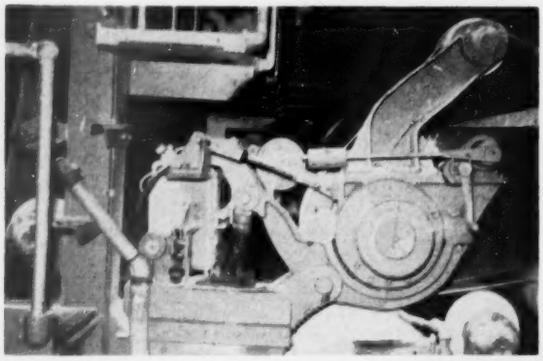
NEWTON UPPER FALLS 64, MASSACHUSETTS

CAMERA VIEWS OF NEW NEKOOSA MACHINE

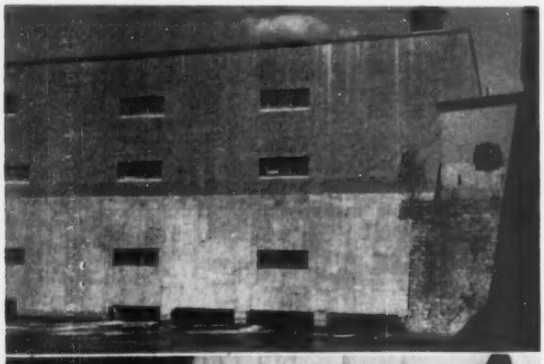


THIS SHOE-STORE TYPE LADDER with wheels on upper and lower rails facilitates maintenance on new No. 9 at Nekoosa. Bert Kassing stands by. He is Director of Process and Product Development.

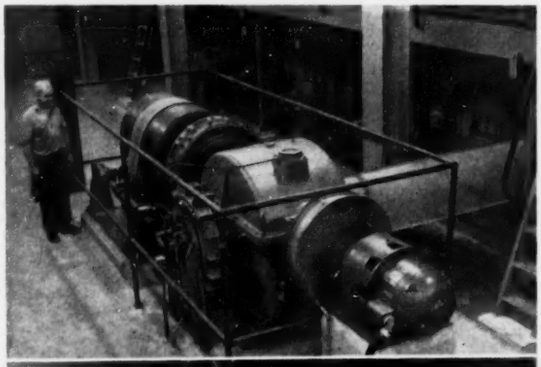
NEW DESIGN OF WATERMARKER—small roll directly under walkway —is a feature of Pusey & Jones No. 9 machine, described in story.



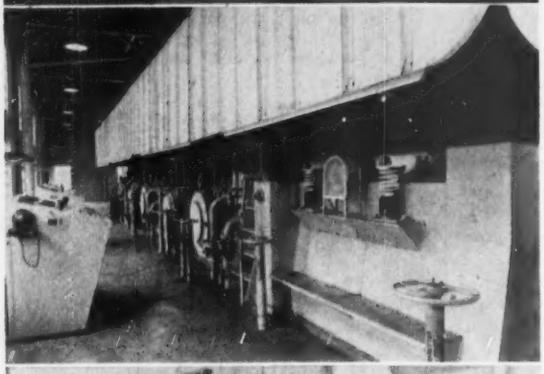
MAIN LINE SHAFT in basement for drive for No. 9 Machine at Nekoosa. A 1,000 hp. Worthington steam turbine is main unit in shaft assembly with belts showing to machine above.



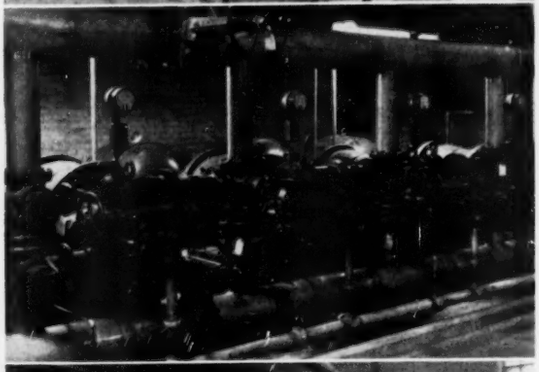
GLASS BLOCK WINDOWS and brick and concrete structure of new No. 9 Machine room on river side of Nekoosa Mill.



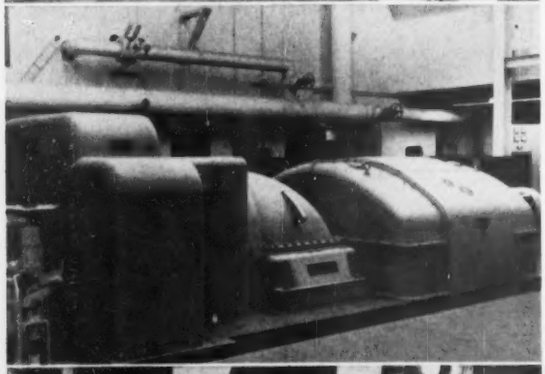
SMOOTH STARTUP FOR No. 9 dryer drive. GENERAL ELECTRIC 25 hp. motor at right is starting or inching drive. It is linked to Airflex clutch, Hypoid gear and another clutch and drive belt to main shaft. After startup, main clutch takes over, saving clutch maintenance.



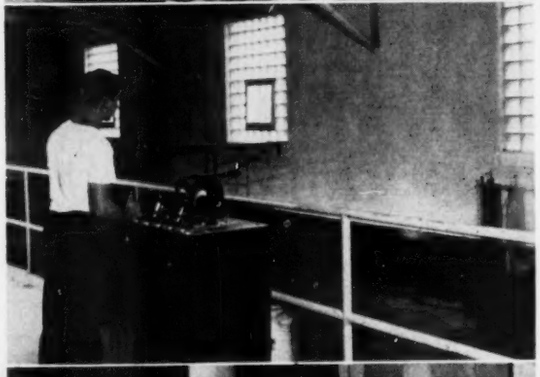
IMPROVED PAPER MACHINERY CO. brown stock washing for new capacity at Nekoosa mill.



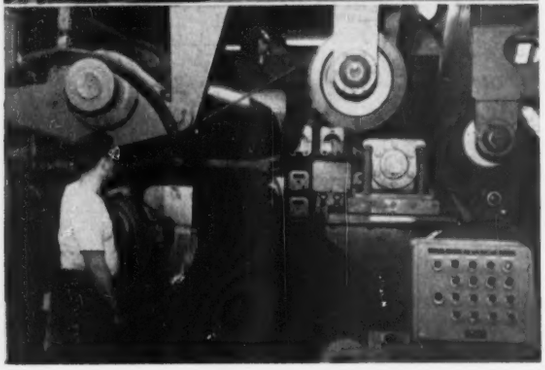
FIVE MORDEN MACHINES CO. Stock-Makers prepare stock ahead of new No. 9 at Nekoosa kraft mill.



ELLIOTT CO. PROVIDED THIS 6,000 KW., 3600 rpm., 30 lb. extraction pressure Turbogenerator for Nekoosa expansion.

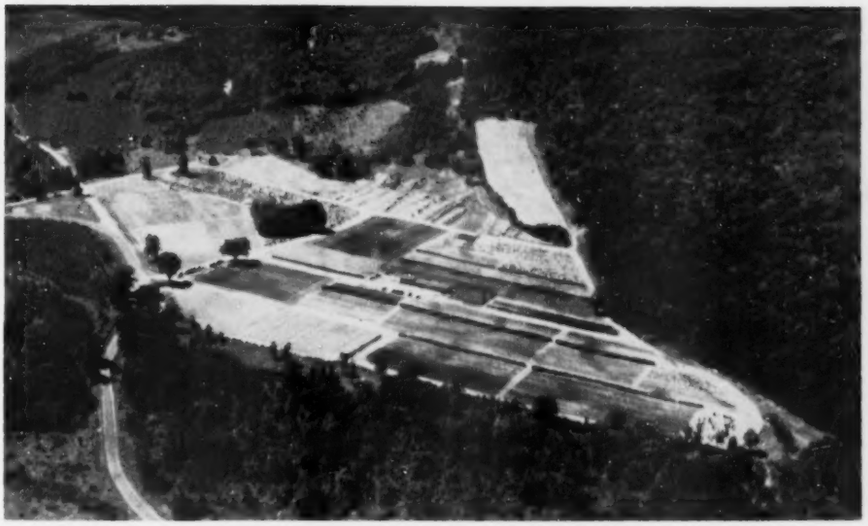


INFILCO WATER TREATMENT plant at Nekoosa Mill was doubled in size for expansion. This is one of Infilco control panels for washing.



SIZE PRESS FOR NO. 9. This shows closeup of rope carrier and one of the Paul Morrow Co. consoles.

NOT IN NEKOOSA MILL, but new equipment in finishing in the Port Edwards mill is this new Ream Sealer and Labeler especially developed for the Port Edwards operation and capable of producing ten packages per minute.



MOST OF TIMBER SHOWN in this air view is property of Nekoosa-Edwards Paper Co. This is its eight acre nursery across the Wisconsin River from the Port Edwards mill which was visited by PULP & PAPER. It has developed new seedling planters and new farming techniques and is recognized as an industry leader in advanced forest practices.

conditioners are used on the first and second press felts. A felt conditioner is not required for the third press felt.

The smooth system of starting up the dryer drive is interesting; if not new, it is unconventional. A General Electric 25 h.p. motor is the starting or inching drive. It is linked to an Airflex clutch, and then a Hypoid gear to dryers, then another Airflex clutch and a drive belt to the main line shaft in the basement, which is coupled to a 1,000 hp. Worthington steam turbine. After the small motor starts dryers moving, the main clutch takes over, saving clutch maintenance.

The dryer drive arrangment is thoroughly interlocked to prevent improper operation. An interlock prevents starting the dryers before the Bowser circulating oil system is turned on. A second interlock prevents going from the running to starting clutch at speeds above 160 f.p.m.

All machine drives are belted with Rhoades Tannate leather belts.

Somewhat unusual is the use of both 60 in. and 48 in. diameter paper dryers. The smaller diameter dryers follow the size press as planned by company engineers based on their previous experience. Two sections precede the size press, with 36 paper dryers in all and 12 felt dryers. After the press are 14 smaller paper dryers and two felt dryers. The bottom 48 in. dryers are all equipped with motor operated oscillating doctors, as are most of the lower 60 in. dryers.

Carrying ropes are provided for threading the sheet through the reverse press dryers, and size press with automatic transfers at the draw points.

The size press consists of a 28 in. diameter Stonite upper roll and a 30 in. bottom rubber covered roll. These rolls are interchangeable with the main press rolls. The method of supporting the air loaded top roll from an overhead beam is interesting in that it gives a very open design and permits an ample width walkway across the machine at this point.

A 7 in. diameter Mt. Hope Machinery adjustable expander roll follows a 20 in. bronze shell carry roll which takes the sheet from the size press. This expander roll has been an interesting new development on recent machines, doing a job of spreading the sheet. Both the Mt. Hope expander roll and bronze carry roll are equipped with Allis-Chalmers variable speed drives.

The calender stack of eight rolls with a 30 in. king roll is standard and is equipped with Hannah pneumatic cylinders for added pressure and Lodding hydraulically oscillated doctors on each roll, with Vickers oil hydraulic units for oscillation. The calender lift arrangement is motor operated through a worm gear reduction unit. The point of lift is through the center of the bearing supports, thus permitting jacking of the rolls while running without danger of cocking a bearing.

The Beloit centerwind reel handling 48 in. diameter rolls is standard.

The Cameron Machine winder has a belt to drive its riding roll which is quieter and smoother than older types, and a roll ejector. A Reliance Electric and Engineering "drip-proof" protected shunt-wound, 125 h.p. motor drives the winder.

As in other recent installations, the broke chest—an E. D. Jones & Sons broke pulper—is below the machine where broke feeds into it by gravity from the upper floor with a minimum of handling required. Controls and instruments are where the operator can see the pulper and do his work easily and accurately.

Machine controls, which were custom-built by the Paul Morrow Co. of Wilmington, Del., are used for grouping the essential control functions at each section of the machine. Selector valves for each piece of air operated equipment are located on the top of these consoles. Mason-Neilan pressure regulating equipment is set back out of the way and works through pilot operated relay valves controlled by the selector valves. On the face of the consoles are located push-buttons for controlling the more important functions necessary for machine operations. Functions not normally needed by the operators, except for a start-up and shut-down, are grouped in several convenient control centers located away from the machine.

Push buttons at machinetender's station on the operating footboard are interesting in that they permit adjusting of machine speeds while still keeping the wire and its condition in view. Machine speed is also recorded at the backtender's table where breaks, down time, etc., are recorded.

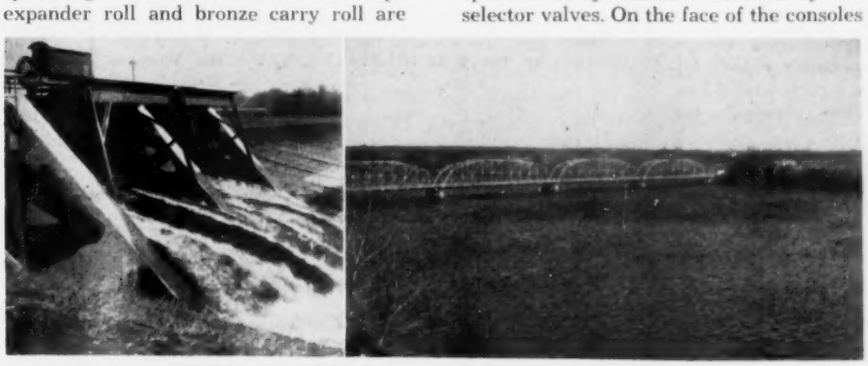
There are push button controls and recorders for all operations and also the Jones Pulpmasters, Mordens, and other auxiliaries. A Foxboro panel at the headbox for varying fan pump speed and valve opening and Mason Neilan console and recorders and Stamm dryer drainage control may be mentioned.

Skipping back to the stock preparation room, there are two new Jones Pulpmasters in what is really the old beater room. The five Morden Stock-Makers are each driven by 200 h.p. General Electric induction motors. Mordens are also used on other machines but this is the largest battery. Three General Electric 3-phase 300 h.p. synchronous motors drive the Noble & Wood jordans. G.E. motors are generally used throughout, but these are among the largest. The drive for the 10,000 g.p.m. Allis-Chalmers fan pump permits varying speeds and there is a 150 h.p. motor on Warren primary Vortraps pump of 4400 gpm.

Generally throughout the new pumps for stock are Warren Steam Pump Co. products, and there are some Worthingtons and Goulds and Nash Engineering for machine vacuum.

Pulp Mill and Bleach Plant

The changeover of this mill from sulfite and groundwood to sulfate was started in 1918 and completed in 1928 and since then improvement and expansion continued.



NEW FLOOD GATES (left) have been provided on the Nekoosa Dam alongside the kraft mill in that town. This is on Wisconsin River. (Right) **THE NEKOOSA BRIDGE** crossing Wisconsin River just above the kraft pulp and paper mill of Nekoosa-Edwards Paper Co.

A
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. . . FOR ANY JOB

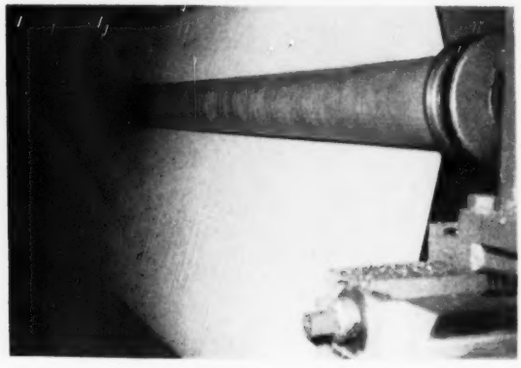
PAUL MORROW COMPANY, INC.
WILMINGTON, DELAWARE

Another New Machine incorporates Mount Hope Expander for safe, wrinklefree operation!

Mount Hope FREE WHEELING EXPANDERS

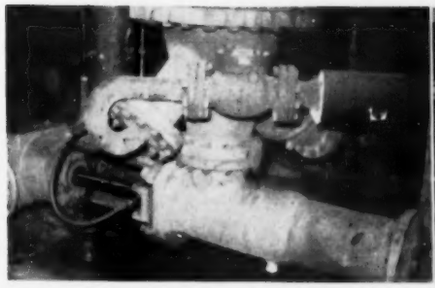
Leading Paper Mills in the United States, Canada and Europe report: "Mount Hope Ball Bearing Free Wheeling Expanders improve paper machine operations to such an extent that no mill can afford to operate without them!"

Your own experience will prove that these devices can eliminate waste, increase operating speed, improve quality obtained from your paper machines, calenders, coating machines, slitters, rewinds, etc.

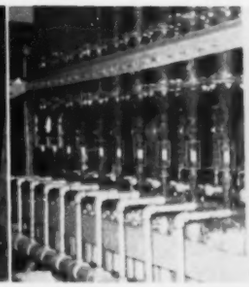


Mount Hope Expander after size press and ahead of third dryer section on No. 9 at Nekoosa-Edwards, Nekoosa, Wisconsin

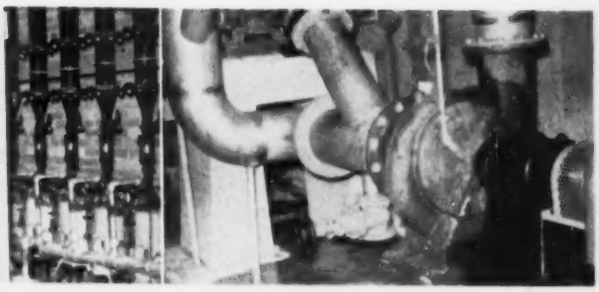
MOUNT HOPE MACHINERY COMPANY
15 FIFTH STREET · TAUNTON · MASSACHUSETTS



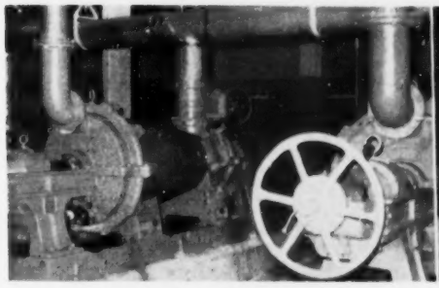
ONE OF THREE YARWAY 8 inch stainless blow valves on new digesters with Crane stainless steel bottom fittings.



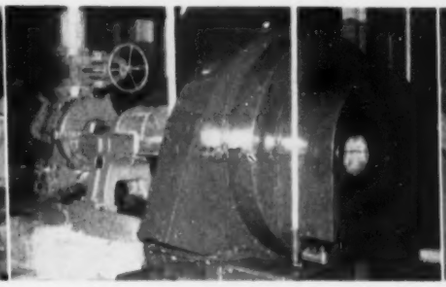
NICHOLS VORTRAPS are used for primary cleaning in preparing stock at Nekoosa mill.



WARREN STEAM PUMP CO. 4,400 g.p.m. primary Vortrap pump at Nekoosa is driven by 150 h.p. General Electric motor.

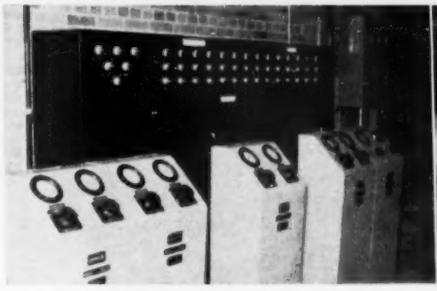


NOBLE & WOOD jordans prepare stock after Mordens and ahead of Nekoosa's No. 9. Stainless piping is Tri-Clover Zephyrweld.

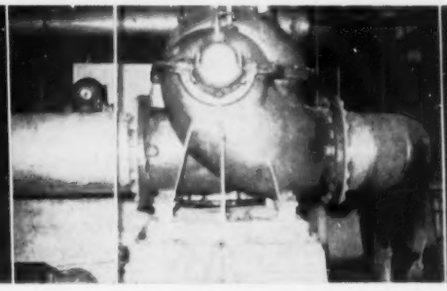


ONE OF THREE GENERAL ELECTRIC synchronous 3-phase 300 hp. motors driving Noble & Wood jordans in No. 9 machine room.

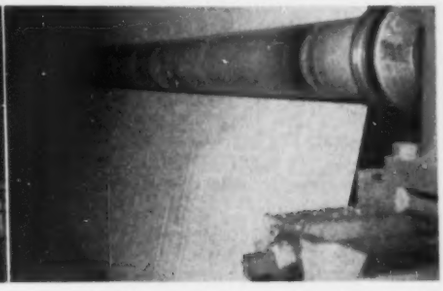
ONE OF NEW E. D. JONES Pulpmasters and controls ahead of No. 9 Machine at Nekoosa.



MASON NEILAN CONSOLES are shown here with Paul Morrow control panel opposite front side of new No. 9 machine.



ALLIS-CHALMERS 10,000 g.p.m. Fan pump for No. 9 with large Tri-Clover Co. Zephyrweld stainless pipe and fittings.

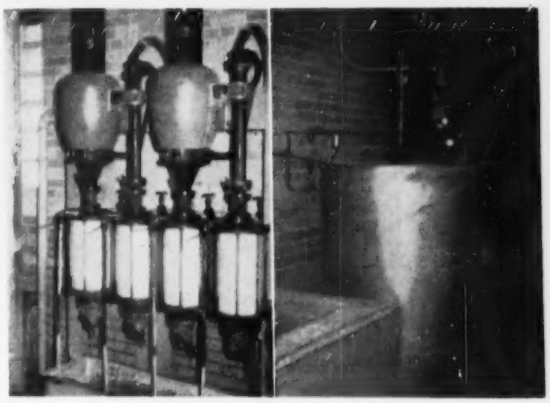


MT. HOPE MACHINERY CO. provided this adjustable expander roll which takes sheet from size press of No. 9 Nekoosa machine and spreads the sheet.

Now designed for 200 tons, the bleached pulp will be further increased as another big Impco stainless steel washer is already on the operating floor to add a sixth stage, later this year. As of now, 150 tons are full bleached, the rest semi- or unbleached.

About $1,000,000 has been spent in woodroom, pulp mill and bleach plant alone in the past two years, keeping ahead of the paper mill expansion. A Fibre Making Processes 10 x 30 ft. chain suspended barker has been added, giving the kraft mill two barkers. A new 88 in. 10 knife D. J. Murray chipper has taken care of increased chip output.

A modernized Link-Belt conveying system for chips, with Merrick Weightometer, Eriez plate type magnets and three Tyler screens, is an important change. Pushbutton control from the digester room for the whole system put Nekoosa even with the most modern mills in this respect. A Link-Belt shuttle conveyor blends chips ahead of new groundfloor storage facilities for 12 hrs. at rate of 200 tons (pulp) per day, divided into two sections with four 3-unit banks of Link-Belt star feeders below the bin. This makes it possible to use a range from 100% coniferous wood and varying mixtures to 100% hardwood.



BIRD MACHINE CO. Dirtecs are used for secondary stock cleaning ahead of the new No. 9 machine.

DEZURIK SHOWER CO. provided this consistency regulator ahead of No. 9 machine at Nekoosa Mill.

Pushbutton controls by woodroom personnel operate all conveying and elevators to storage. From there to overhead feed over digesters, the control is included in overall digester room operation as developed by Foxboro.

Three new 11 by 45½ ft. digesters, 3600 cu. ft. capacity, of grade C firebox steel have been added in direct line, giving the mill seven digesters in all. The mill anticipates 20-yr. life for the digesters. They have Electric Steel Foundry stainless steel strainers, Fibre Making Processes circulation and two-pass beaters, all type 304 stainless, and Yarnall-Waring motor operated seatless stainless blow valves and Crane Co. stainless steel bottom fittings. Digester operation stainless piping is from Midland Pipe and Supply.

Two of the new Impco valveless deckers, rebuilt Thune screens with .018 in. Magnus Metal slotted plates, and .014 to .010 slotted plates in the six lines of Impco flat screens, Stebbins Semtile lined vats and

HERE'S HOW TRUMBULL ENGINEERING aptitude procedures assist in determining best uses of skills of employes at Nekoosa-Edwards Paper Co. A set of standardized questions are on the desk. In group facing camera at end of table is Joe Smart, who recently became Asst. Paper Mill Supt. at Nekoosa.

Kamyr wet machine are in the rebuilt wet room.

Already mentioned is the addition of another bleach plant Impco washer, of vacuum type. Stebbins provided ceramic tile for all vats and tanks for stock in this very much open, modern bleach plant. There are no pillars or posts to obstruct clear vision on the operating floor, push-button operated with Foxboro controls. Notable are uses made of Saran for piping and the new Heresite coating for high corrosion resistance inside equipment. The sixth bleach stage will give longer retention as well as increased capacity, so the Nekoosa management expects improved quality.

Infilco Inc., has doubled the size of the water treatment plant which is on the river next to the bleach plant and now has seven control panels for air-operated valve system. Alum treatment is provided. On the Nekoosa dam are also new flood control gates.

Swenson Evaporator Co. supplied three new evaporator bodies to operate with two existing units to form a quintupal effect evaporator. The first effect is the Swenson developed 2-pass first effect. Dorrco expanded the decausticizing system with its standard additions. As a result of chemical operation improvements, salt cake consumption is reduced over 60%.

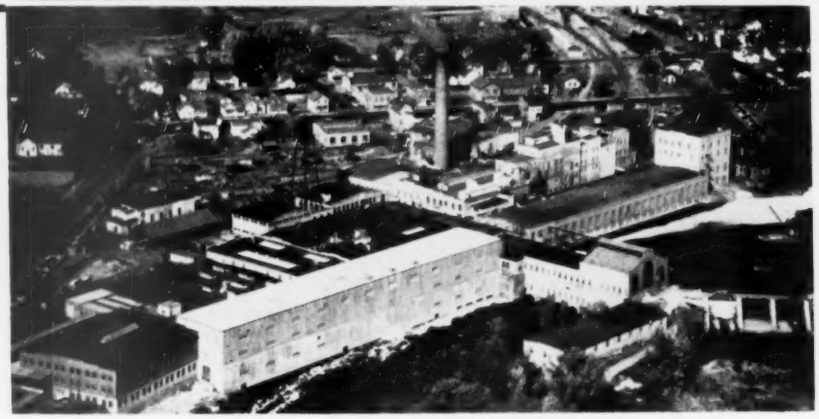
Major addition in the power-recovery expansion for Nekoosa was a new Combustion Engineering 110,000 pph. 700 TT. water-walled boiler with modern standard equipment including two pulverizers for coal burning, and fans and pulverizer drives by Electric Machinery Mfg. Corp. Western Precipitation Corp. provided the dust collector.

In power generating, the major equipment included a 6000 kw. 3600 rpm. 30 lb. extraction pressure turbine generator by Elliott Co.

Equipment generally throughout power, feedwater and electrical installations is modern, standard. Elliott also provided a 360 hp. boiler feed pump turbine, Cochrane a feedwater heater, Worthington pumps and condensate equipment, and Infilco provide three hydrogen zeolite 450 gpm. water treatment systems. Four General Electric unit substations and G.E. amplydine control 2400 volt motor starters, and Westinghouse switchgear and transformer were included in various electrical equipment.

SOME OF THE PAPER PRODUCTS—these are freezer papers—made with Nekoosa-Edwards paper.

NEPCO MOVES AHEAD!



We extend our heartiest congratulations to the Nekoosa-Edwards Paper Company, its 2,000 shareholders, and its 2,000 officers and employees on the completion of its extensive expansion program.

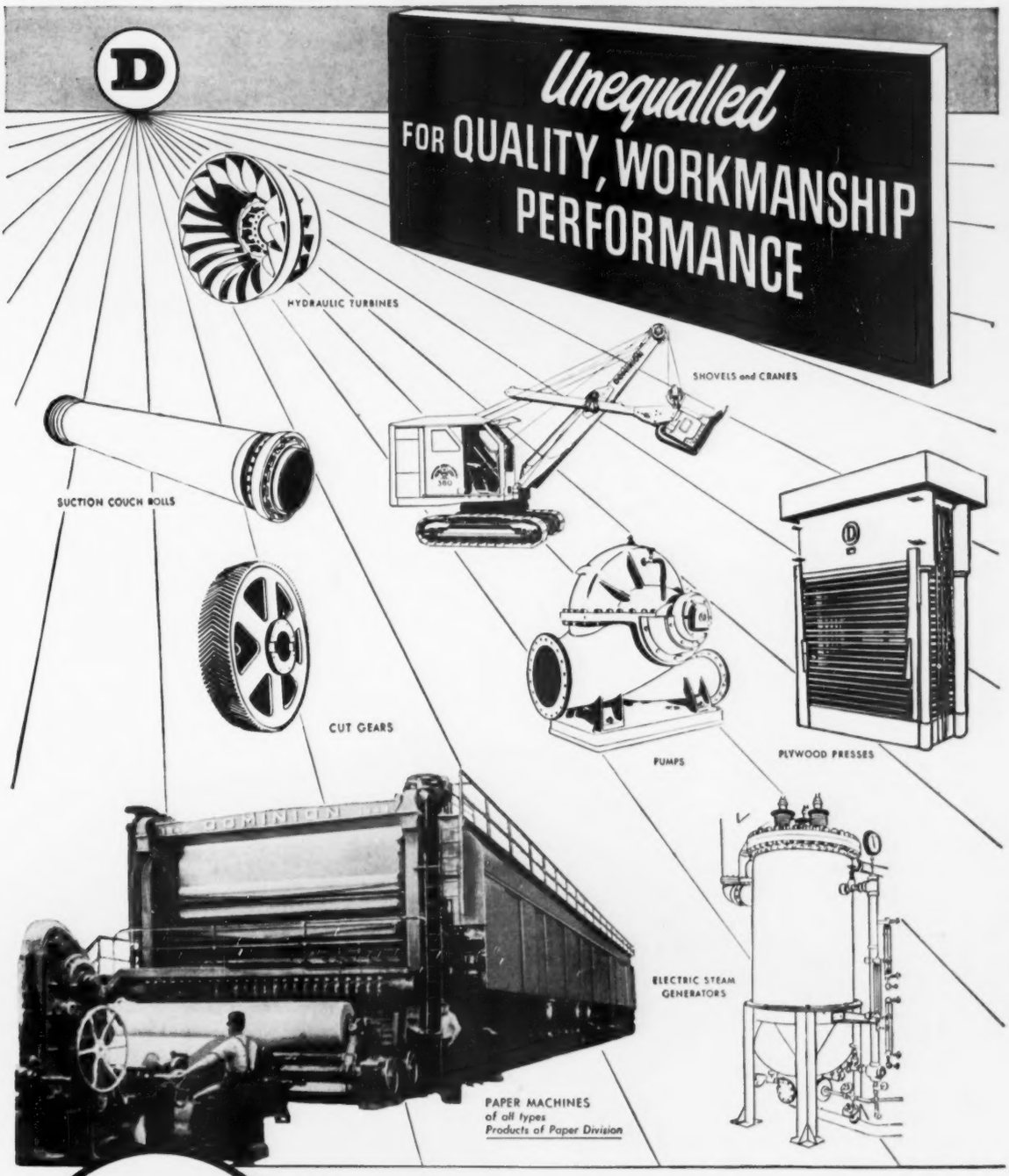
We are extremely proud of having been again able to serve Nekoosa-Edwards Paper Company, one of the leaders in the pulp and paper industry in our great State of Wisconsin, in the construction of its new No. 9 machine building and appurtenant structures and the installation of its equipment.

May the future fully justify the foresight and planning of your officers and directors, and it is our most fervent wish that the ensuing years will bring all of you the prosperity you so justly deserve.

C. R. MEYER and SONS COMPANY *Engineers - Contractors - Builders*

50 State Street Oshkosh, Wisconsin

(Serving the Pulp and Paper Industry in Wisconsin and Upper Michigan Peninsula for over 40 years.)



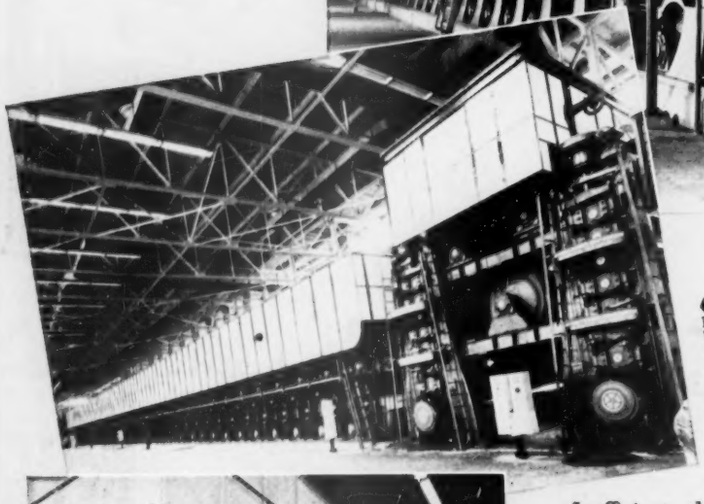
built by

DOMINION ENGINEERING COMPANY LIMITED

MONTREAL • TORONTO • WINNIPEG • VANCOUVER

Modernize with a new Puseyjones Dry Part

Dryer Part for high speed felt machine arranged in four drive sections.



Dryer section for kraft fourdrinier liner board machine with high pressure dryers. Note also arrangement of large dryers between the calender stacks.

Footboards are out in this modern dryer section. Ladders on tracks run the entire length of the dryers.

Inefficient dryers are slowing production, increasing maintenance costs in many mills. Sometimes the replacement of outmoded low pressure dryers is the answer. In several unique modernizations, the machines continued to turn out paper by isolating each of the dryer sections in turn while the maintenance and operating crews made the change-over.

Puseyjones engineers will be glad to show you the latest developments in efficient, high-speed dryer sections. They have facts and figures to prove that modernization pays – in stepped up production, better sheet quality and a wider range of paper products. Write us today.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

THE PUSEY AND JONES CORPORATION

Established 1848. Builders of Paper-Making Machinery

Fabricators and Welders of all classes of Steel and Alloy Products

Wilmington 99, Delaware, U.S.A.

GEARHART, ORE., REVIEW

MANAGEMENT TRAINING—THREE REPORTS

"ONE OF THE HOTTEST topics in American industry today"—that's the way Don Osborne, training director of Crown Zellerbach Corp., West Linn, Ore., described the subject discussed at the opening session of the Pacific Coast Annual Spring Meeting at Gearhart, Ore., May 21-23.

How to develop and improve key personnel was the subject. It was a panel discussion and was regarded by many delegates as the high point of the three-day meeting on the scenic and sandy Oregon beach.

Jointly sponsored by Coast Superintendents and Tappi, this fourth meeting at the Gearhart resort drew a registration of 409. The sunshine was filtered with showers of "Oregon dew" but this didn't dampen the spirits and pleasures of the occasion—even the golf—though it did possibly prevent attendance reaching the record total of 460, set at Gearhart in 1948. That record, incidentally, is one of the highest ever set for any meeting on the continent outside of a national.

Despite the filtered sunshine, it looks very much as though Gearhart has become an institution—like Poland Springs in the Northeast—and that joint spring meetings probably will be held there almost every May. This year's attendance included 108 mill men, 148 suppliers and 153 women. Besides the record 1948 meeting, two other Gearhart meetings, in 1946 and 1947, drew totals of 350 and 315, respectively.

Getting back to the interesting opening session on developing key personnel, Mr. Osborne set the keynote by describing them as "our management team." He said:

"Of two big mail order houses in our country, one has far outstripped the other because of what it has done in this field. Not so many years ago, they were on a par in sales. We can't leave this to chance. Personnel reasons are usually the reasons for operational failures."

Mr. Osborne related how organization charts and uses of retirement and other personnel records of the past, will help a company to determine its manpower needs over future periods of time. He told how Crown Zellerbach is planning replacements in ranks of supervisors and managers, and carrying on group training, speech training, management information programs, etc., to this end.

Incidentally the speaker's own position of training director at West Linn is a newly created job—CZ's only other one so far being at Camas, held by Reg Haight. Mr. Osborne was former personnel and safety supervisor at Port Townsend, Wash., and those positions in CZ continue separately from the new training posts.

He described a planned program for developing key CZ personnel as a 4-step plan:

1. Definition of the organizational structure, listing duties, responsibilities, relationships, etc.
2. Determination of manpower needs over a period of time by past records.
3. Inventory of management personnel and prospective personnel.
4. Development of individuals through (a) group training, and (b) personalized training.

He stressed that stimulation from top executives is essential for the success of any such program (for more detail of Mr. Osborne's address see the published text elsewhere in this issue, entitled *"Improving Key Personnel."*

R. S. WERTHEIMER (left), Vice President and Gen. Mgr., Longview Fibre Co., Longview, Wash., presided at one of dinners at Gearhart convention and was one of honor guests. He recalled when Coast meetings were lucky to draw 50 persons instead of over 400.
ZINA A. (Zinc) WISE (right), President of Griffith Rubber Mills, Portland, Ore., and "father" of the Brotherhood of Migratory Peddlers, also was a guest of honor in Gearhart, at a Peddlers reunion. He has been recovering from serious illness.

FATHER AND SON TEAM

RAY SMYTHE (left) and his son, ROBERT SMYTHE, new member of the firm of RAY SMYTHE CO., Park Bldg., Portland, Ore., Manufacturers Representatives on Pacific Coast, who contributed to success of Peddlers' Breakfast show and of entertainment for Gearhart convention. Ray wrote a good part of the Peddlers' show and his son gave a humorous piano demonstration. They represent a number of firms including Rice Barton Corp., Sutherland Refiner Corp., Heppenstall Co., Carthage Machine, Smythe Multivat Flat Screens, etc.

What Alcoa Has Done

Mel Parker, training director of Aluminum Co. of America, largest company of its kind in the world, told how his company developed a training program at its big Vancouver, Wash., plant.

He said the objectives were to develop among the key personnel prospects: (1) self expression, (2) human relations, (3) free enterprise, (4) basic industry information, and (5) knowledge of Alcoa policies.

A college instructor and high school principal and coach for a number of years, the Alcoa management called him in to start the program from scratch. He traced its development. The phases of the program, he said, were:

DISCUSSED WAYS AND MEANS OF DEVELOPING KEY PERSONNEL

HIGHLIGHT OF GEARHART, Ore., Convention was a round table discussion of a major management problem in the paper industry—how to develop key personnel. DON OSBORNE, Training Director at the West Linn, Ore., Mill (a new position in Crown Zellerbach Corp.), who is shown at right in this picture, gave the principal address. Here is the panel of speakers (l to r): GUS OSTENSON, Mgr. of Paper Mfg., Crown Z., Camas, Moderator, who told of AMA courses he took in New York; HAROLD FRETZ, Training Director for Rayonier Inc., who described that company's "Management Conference Program," and MEL A. PARKER, Training Supervisor for Aluminum Corp. of America, Vancouver, Wash., which developed an entirely new program under his direction.

1. Information. On company, industry, staff, trends, etc.

2. Job instruction and job rotation. In all departments and offices for the prospect.

3. Related training. So a prospect can handle a safety meeting, talk before a community group, to learn to teach others, etc.

What Rayonier Is Doing

Harold Fretz, former technical director at Rayonier's Port Angeles mill but now for some years the training director for all the Rayonier mills in Southeast and Northwest, with headquarters at Hoquiam, Wash., was the next speaker. He told of Rayonier's "management conference program," developed on the basis of work at Harvard Business Administration School. (Described in the book, "*The Administrator*"—information on the book available by writing PULP & PAPER.)

Purposes of the program, said Mr. Fretz, were to make the conferees aware of the behavior of others, aware of their own behavior, and to develop the skills needed to effectively handle human situations.

Economic, political and industry and company policies are discussed. The supervisor is taught to look at a situation as a whole, to handle a problem in the broad company interest, and to orient himself away from a narrow, personal viewpoint.

He told of development of discussion groups in Rayonier. Plant problems, housekeeping and waste control were discussed. Then the talks broadened to take in subjects such as organization, communication, chain of command, grievances in a broad sense, morale.

Mr. Fretz said management fails when it (1) fails to properly define authority, (2) allows overlapping of authority, (3) lacks clear policies, and (4) lacks planning.

"The lack of a good management training program is the cause of most human relations problems in the mills," he said. Last year, he added, Rayonier started "corrective interview conferences and training." It set up a job employe sheet, listing good qualities demonstrated by individuals, times and places where they failed. When anything was entered on the sheet, it was mandatory to immediately call in the employe and tell him about it. A University of Washington professor at first helped teach the "corrective interview" technique. Also conferences were held on report writing and employment interviewing.

(Top) S. E. HAZELQUIST introduces the featured guest speaker, EDGAR W. SMITH, former president of the Portland Chamber of Commerce, a post he held three times. Mr. Smith, now a successful farmer, told the group that threats to America's independence will not stop with cessation of fire in Korea but will be with us many years.

(Second) THEY PRESENTED PAPERS at Gearhart on cleaning of pulp, from left: HARLAN CLODFELTER, Spaulding Pulp & Paper Co., Newberg, Ore.; HENRY V. CHARNELL, Rayonier, Inc., Port Angeles, Wash.; L. W. HEARD, Longview Fibre Co., Longview, Wash.

(Third) FOUR SPEAKERS IN THE PAPER MACHINE maintenance session at Gearhart: (from left) ED BARTHELMY, Asst. Supt., Paper Machines, CZ, Camas; W. W. CLARKE, Paper Mill Supt., Longview Fibre, who presided; MORRIS MURRAY, Weyerhaeuser, Springfield, Ore.; and RAD RUSSELL, Asst. Gen. Supt., Everett Pulp & Paper Co.

(Bottom) FRED J. WELEBER, left, presided at joint session devoted to papers and discussion on use of Centri-Cleaners, Ahlfors Screens, Lindblad screens and Vortraps in pulp cleaning. He is from Publishers' Paper, Oregon City. Others, left from Mr. Weleber, N. C. KAPHINGST, Sulfite Supt., Columbia River Paper Mills, Vancouver, Wash.; GERRY HOUGH, Shift Supt., Weyerhaeuser, Longview; and FRED R. SIEVERS, the "daddy" of Coast Pulp Superintendents, from CZ at Camas. Mr. Sievers said cleaners are doing a good job but more West Coast conditions study is needed.

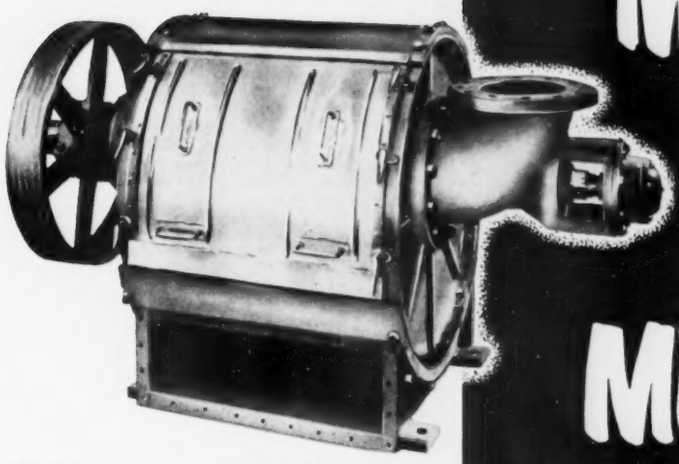
General Discussion

Gus Ostenson, manager of paper manufacturing, Crown Z, Camas, who has recently attended four weeks management course of the American Manufacturers Association in New York, was moderator. He stressed that most important qualities, in his opinion, for management trainees are personal integrity and ability to inspire confidence. Job knowledge is secondary, he said.

Mr. Osborne phrased top quality, in his words, as "ability to get work done through people." The Camas mill indoctrination program for hourly paid supervisory talent was cited.

At this point, Mr. Fretz mentioned Rayonier is developing an entirely new job rotation program for college trainees and others which will take them into all departments and even into New York City executive offices, aimed at developing supervisory material. He said through their local community libraries, mills could obtain instructive literature through Purdue University developed by the Amer-

NEW OFFICERS OF PACIFIC SECTION TAPPI—left to right—H. B. PETERSON, Hercules Powder Co., Portland, Ore., Secy-Treasurer; RICHARD PROBST, Oregon Pulp & Paper Co., Salem, Ore., Executive Committeeman; FRED J. WELEBER, Publishers' Paper Co., Oregon City, Ore., new Chairman; ED H. NUNN, Crown Zellerbach Corp., West Linn, Ore., new Vice Chairman, and JOHN FULTON, Pacific Coast Supply Co., Portland, affiliate representative.



The "Junior" Screen . . . smallest of *three* units producing from 35 to 150 tons per day, respectively.

Money Saving Midgets

Cowan Centrifugal Pulp Screens by
APPLETON MACHINE COMPANY

Added efficiency, greater economy are the watchwords for *Appleton Machine Company's* junior versions of the standard Mark "A" Cowan Centrifugal Pulp Screen, acknowledged as outstanding in its field.

The Mark "E" Screen is a half-sized model of the standard Mark "A", conservatively rated at a capacity of 2400 U.S.G.P.M. accepted stock. 50 h.p. is required to operate the Mark "E", but its drive is designed to accommodate a 60 h.p. motor, wherever needed. The Mark "E" is particularly advantageous in smaller mills, or as a supplementary screening unit. Also, installing two Mark "E" Screens—instead of a single larger machine—provides a definite safety factor in case of breakdown.

The "Junior" Screen is a quarter-sized model of the big Mark "A", with a rated capacity of 1400 U.S.G.P.M. accepted stock. 25 h.p. operates the "Junior" Screen, but it will handle motors up to 40 h.p. Greatest applications are as secondary screening units, and as a primary screen for mills producing a variety of pulp grades which require a system made up of small, separate units.

Performance of these two Cowan Screens is comparable in every way to that of the standard Mark "A" Screen . . . the same high consistency screening . . . low percent rejects . . . good fiber separation . . . low shower dilution pressure . . . top hydraulic efficiency. Typically sound *Appleton Machine* construction plus a protective coating tailored to fit your needs *complete* your assurance of long-time satisfaction.

A
APPLETON MACHINE COMPANY
APPLETON WISCONSIN

CUSTOM-BUILDERS OF PULP & PAPER MILL MACHINES
WINDERS • FINISHING ROLLS • REWINDERS

(TOP) "TRONA" TRIO attend Gearhart, Ore., Convention. These representatives of American Potash & Chemical Corp., suppliers of Trona and Three Elephant brand chemicals to kraft industry are (l to r): H. J. BENSINGER, Sales Mgr., Western Heavy Chemicals Div., from Los Angeles office; ROBERT A. FULTON, of Wilson & Geo. Meyer & Co., Seattle, representatives of American Potash; and WILLIAM J. F. (BUCK) FRANCIS, recently appointed General Sales Mgr. of Western Div., American Potash, with headquarters in Los Angeles. He moved there from Tacoma, Wash., where he was in the chemical industry.

(MIDDLE) FROM EAST to Gearhart, Ore. Convention came two of these men: Left to right: WALT SALMONSON, of Portland, Ore., their Coast representative, and RAY DEZURIK, of DeZurik Shower Co., Sartell, Minn., and R. P. (PIDGE) ABERCROMBIE, of Cheney-Bigelow Co., Springfield, Mass.

(BOTTOM) GOLFERS AT GEARHART (l to r): Mrs. JOHN FULTON (Pacific Coast Supply Co.); MRS. DICK PROBST (Columbia River Paper Mills; MRS. SID DREW (Drew Engineering); LEROY SHANAMAN, Penn Salt Co., and JACK WILCOX, Electric Steel Foundry Co. All are from Portland, Ore. Mr. Wilcox again chairmanned the golf tournaments and arrangements.

ican Society of Training Directors.

Moot questions raised by some of the audience were how small mills, with only a few key personnel, could find time for meetings and training programs. Also at what point in the mill should training stop—as the discussion was centered on what one questioner called "front line management" training. As a starter, it was suggested small mills might bring in outside professors or experts or use texts and literature.

Luncheon and Business Meetings

Edgar W. Smith, former president of the Portland, Ore., Chamber of Commerce, was luncheon speaker and he stressed the need of a realistic outlook on world affairs, and predicted ten years more of tension abroad and huge budgets at home. But he said this was "incomparably cheaper than another all-out war."

Business meetings of the Coast groups preceded the luncheon. The Coast Superintendents announced plans for an annual Fall Meeting to be held at the New Washington hotel in Seattle on Dec. 4-5. Mr. Ostenson presided as chairman. New elections will be held in Seattle.

S. E. Hazelquist, technical director at Weyerhaeuser Timber Co., Longview, Wash., stepped down as Tappi chairman following the election of new officers. They are Fred J. Weleber, Publishers' Paper Co., Oregon City, Ore., chairman; Ed H. Nunn, Crown Zellerbach Corp., West Linn, Ore., vice chairman; H. B. Petersen, Hercules Powder Co., Portland, Ore., secretary-treasurer; Ben T. Briggs, Rayonier Inc., and Dick Probst, Oregon Pulp & Paper Co., industry representatives on the executive committee; John Fulton, Pacific Coast Supply Co., affiliate representative on the executive committee.

Technical Sessions

The first technical session heard a paper on a new portable generator for chlorine dioxide bleaching by Joe B. Heitman, Pennsylvania Salt Manufacturing Co. of Washington, published elsewhere in this issue. Mr. Heitman told the group how his company ran a pilot plant operation employing a system used in the I. G. Farben Industries in Germany. Mr. Heitman described the work involved in finding satisfactory materials for parts and equipment used in the reaction; a certain amount of substitution was required until materials were found that would withstand the strong chemical reactions.

Paper Machine Maintenance

An outstanding discussion of the meeting, from the standpoint of audience participation, was the session devoted to paper machine maintenance. It was evident, as the questions and answers flew back and forth, that there is a wide variety of philosophies on the maintenance procedure, even though the final goal of all is minimum shutdowns with maximum efficiency in the repair. W. W. Clarke, paper mill superintendent, Longview Fibre Co., presided.

Rad Russell, assistant general superintendent, Everett Pulp & Paper Co., said that his department washes up every four days, utilizing the services of all the various technicians. Four hours are allowed for wire changes. On the little maintenance jobs, these are written down by his men as soon as they are noted so that they can be scheduled during the shutdown periods.

IN WEST FOR RELIANCE ELECTRIC & ENGINEERING CO.

JOHN C. SHAFFER (left), of Shaffer & Nelson, 1204 N.W. Glisan St., Portland 9, Ore., and ANDREW C. PERRIN (right), West Coast District Mgr., Reliance Electric & Engineering Co., 122 Second Ave., San Mateo, Calif., wearing the fancy bow ties, which were mandatory for all delegates to recent Coast convention at Gearhart, Ore. Mr. Perrin recently went west for Reliance and bought a home at 155 No. El Camino in San Mateo. Born in Chicago, he graduated from Purdue in e. e., 1940, was a major in Army Signal Corps in W. W. II and was attached to Reliance's Chicago office the past seven years. Mr. Shaffer is associated with Eric Nelson, 312 Occidental Ave., Seattle, as Application Engineers and representatives of Reliance in Pacific Northwest.

NATIONAL ANILINE MANAGERS

FRED H. IHLENBURG (left), new Pacific Northwest Mgr. for National Aniline Division of Allied Chemical & Dye Corp., with his chief, HARRIS FENN (right), Pacific Coast Manager, headquarters in San Francisco. Mr. Ihlenburg was born in New York City, graduated from Concordia Collegiate Institute of Bronxville, N. Y., and Pratt Institute of N. Y., was war pilot for 8th Air Force, flying over Europe, coming out a Captain, and rejoined National Aniline in 1947 in New York. He had been with them 1937-40. Mr. Fenn went west several years ago from New York and was a former Pacific Northwest Mgr., stationed in Portland, Ore., where Mr. Ihlenburg will headquarter.

The assistant superintendent in charge of tissue machines at Crown Zellerbach, Camas, Wash., Ed Barthelmy, told about their "field mice," who are men with flashlights constantly roaming the plant and immediately noting anything that looks wrong to them. Although they are usually junior engineers or young men with mechanical bents, they are not authorized to take anything apart themselves.

Mr. Barthelmy also told how their meeting set-up worked. They hold weekly meetings in which all the planned repairs are discussed so that they can be fitted into everyone's work. There is a Sunday shutdown for minor repairs, such as wires, felts, etc. A daily meeting is held by the department heads to discuss any needed repairs. A preference is determined for the various repair, maintenance and construction jobs; this system is found to be very adequate.

Another method was described by Morris Murray, paper mill superintendent for the Weyerhaeuser Timber Co., Springfield, Ore. He outlined their "work order" system. Wires there are changed every eight days. At this time they try to do as much other maintenance and repair as possible. A six-hour shutdown for this purpose is the regular plan. A meeting is held not only *before* the shutdown but also *after* in order to analyze reasons why the job coordination wasn't as effective as it might have been.

Charles Ackley, paper mill superintendent for Crown Z at West Linn, Ore., said they find planned shutdowns are beneficial and mean less downtime in the long run. Shutdowns, he believes, should be planned to fit order changes if possible.

It was brought out that pre-planning of shutdowns allows everybody to go ahead on their needed projects the morning of the shutdown.

Ammonia vs. Calcium Base

Other simultaneous sessions were on kraft pulping led by Hugo Trigg of Weyerhaeuser, Springfield, and sulfite pulping led by Jack Savage of Camas. Black liquor oxidation and evaporator tube plugging were discussed at the one, and ammonia pulping was subject of papers at the second.

Lauren A. La Fond, of Crown Z, Lebanon, Ore., one of the pioneer mills to go over to ammonia from calcium base summarized advantages of the former as follows:

"After three and one-half years of operation on the ammonia base sulfite method of cooking at Lebanon, a fair comparison in both cost and operating experience can be made with the calcium or dolomite base acid system.

"There is a saving in handling costs of ammonia over either lime rock or burned lime; also a definite reduction in safety hazards involved in handling by both the operators and unloaders.

"There is less maintenance in the acid plant and no weekly cleanups using ammonia because of the elimination of scale.

"Faster penetration of ammonia base acid of the chips has shortened cooking time and reduced screenings. There has been an increase in pulp yield. The brightness of ammonia base pulp is lower, and dirt count higher than calcium base pulp, the first due to lower combine, and the latter caused by more thorough penetration of the acid around the knots.

"There has been an increase in slime growth due to the nitrogen in the ammonia base acid, but this has been controlled by the use of slimicides."

James H. Hull, of Camas, discussed evaporating and burning of ammonia base liquor.

Cleaning of Pulp

Longest session at the meeting was the final technical discussion devoted to cleaning pulp.

Henry V. Charnell, Jr., of Rayonier, Port Angeles, discussed "Dirt Count and Evaluation." Mr. Charnell stated that the determination of an accurate value for the dirt count level of a sample of pulp or paper is one of the less precise procedures in the industry. Although the answer to a pulp customer's question, "How much dirt is there?", is most easily secured simply by counting the visible dirt, there are difficulties attending such a determination, he said. Mr. Charnell said that they recognized the limitations of the results but that necessity has dictated a simple test that can be run by shift inspectors and that will contribute to the knowledge of the product quality.

In the system in use at his plant, Mr. Charnell said, dirt count values, weighted to give the effect of size, are plotted on control charts to establish and follow the trend of dirt count during a run. Dirt speck size is used to control the estimated weighting and to determine whether screens are functioning properly. Classification is used to determine the source of dirt contamination. Work on the realiability of dirt count values indicates that the standard

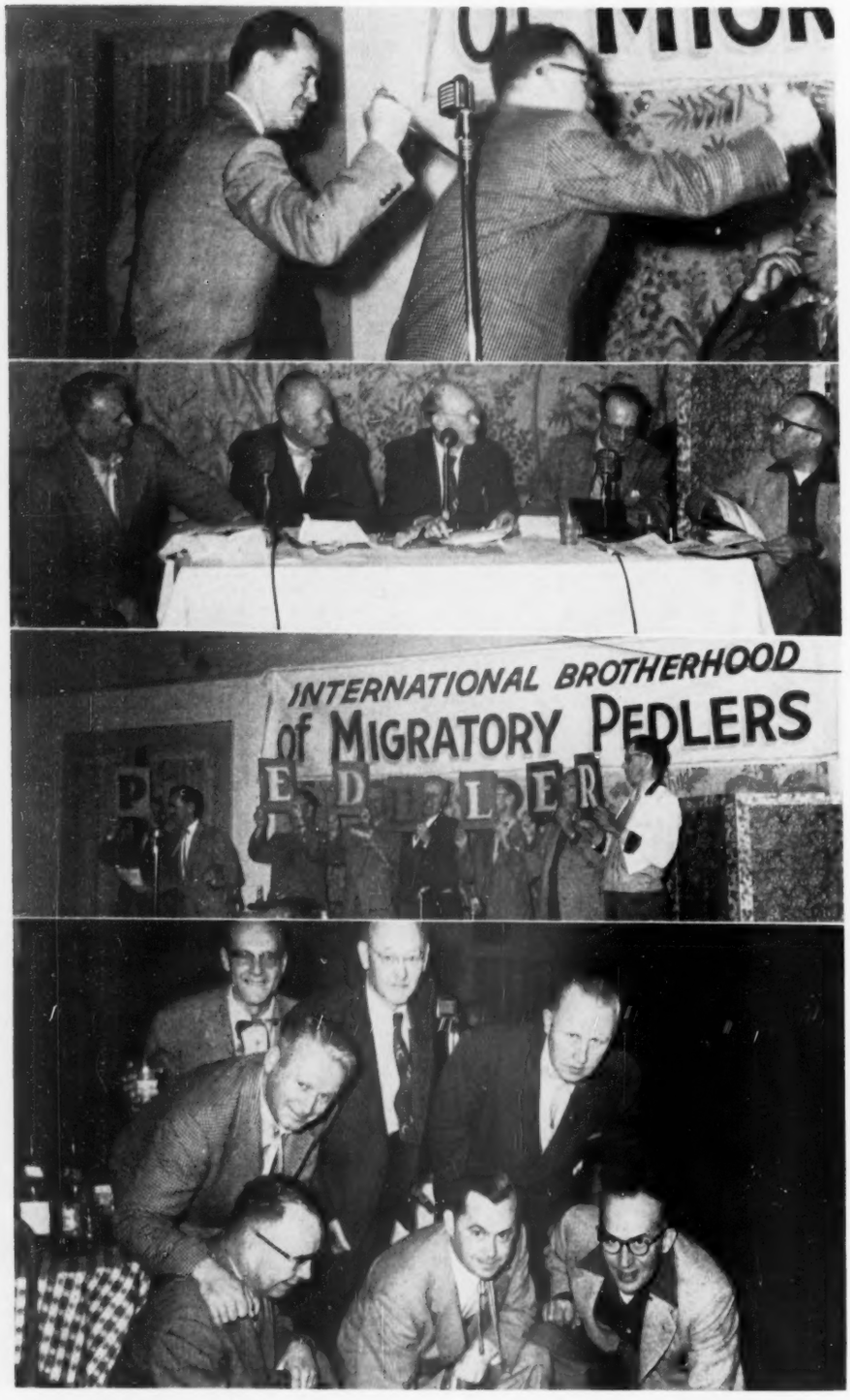
(TOP) A GUEST OF HONOR AT GEARHART was MARTIN J. AUCHTER, one of Vice Presidents of American Pulp & Paper Mill Supts. Assn. and Mfg. Vice Pres. of Hoberg Paper Mills, Green Bay, Wis., who is in middle of this threesome. He is shown here with two other Pacific Coast "tissue men": JOHN ASHBY, (left), Mill Mgr., Westminster Paper Co., and PETE ONKELS (right), Mill Mgr., Pacific Coast Paper Mills of Washington. Mr. Onkels and Mr. Auchter, old friends from Wisconsin, toured Coast mills together.

(MIDDLE) CHUCK WALTON, Plant Manager, Simpson Logging Co., Shelton, Wash.; DON FELTHOUS, Plant Engineer, Pulp Division, Weyerhaeuser, Longview; WALTER O. STEVENS of W. O. Stevens & Co., power plant consultants, Seattle; GERRY HOUGH, Kraft Mill Shift Supt., Weyerhaeuser, Longview.

(BOTTOM) GEARHART PERSONALITIES (l to r): BRIAN SHERA, Penn Salt of Washington, Tacoma, BOB HOLCOMB, Supt., Fibreboard Products Inc., Port Angeles; KEN JONES, Ross Engineering, Seattle, and JACK SUTHERLAND, Hooker Electrochemical, Tacoma. RIGHT, WILLIAM W. CLARKE, Paper Mill Supt., Longview Fibre Co., co-chairman of Gearhart meeting with Fred L. Weleber, of Publishers Paper Co., shown in other pictures.

"BIRTH OF A CONVENTION", OR "STUPIDITY TRIUMPHANT"

A 3-D PRODUCTION AT GEARHART BY MIGRATORY PEDDLERS



INTERNATIONAL BROTHERHOOD OF MIGRATORY PEDDLERS, Waiting Room No. 1, of Portland, Ore., put on Wake Em Up Breakfast Show at Gearhart, Ore. It was a travesty on committee planning a convention. Also Peddlers initiated GUS OSTENSON, Manager of Paper Manufacturing, Crown Zellerbach, Camas, Wash., as Honorary Member. In top view, Mr. Ostenson is instructed in Peddler ritual—stabbing a brother in the back—this one being Bill Marshall of Pacific Coast Supply and American Cyanamid Calco Division.

Next view—some of "Convention Committee" discuss plans (l to r), LEROY SHANAMAN, Penn Salt; WALT SALMONSON, DeZurik Shower and Draper; RAY SMYTHE, Rice Barton; HERB BECK, Morden Machines, and JOHN FULTON, Pacific Coast Supply. Third view—Group spell out PEDDLERS with signs as they sing their song: "P stands for the Peanuts that they pay me, etc."

LOWER VIEW—Shaking dice to decide what Convention Registration charges should be. Dice came up deuce and trey. Argument whether it should be $32 or $23 is settled when Roy Shanaman said: "Let's make it $30 for men, $20 for women." In front row are Messrs. Marshall, Ostenson and Fulton. Other Peddlers behind them are Messrs. Shanaman, Beck, Smythe and Salmonson. Other stars of show were Sid Drew, Pete Peterson and Bob Smythe.

deviation for replicate tests on the same sample were as high as 35 per cent of the dirt count value in the range 178 to 450 dirt count.

L. W. Heard, Longview Fibre Co., discussed uses of Ahlfors Screens, Centri-Cleaners and Vortraps. He did not make any attempt to differentiate from standpoints of cost or efficiency.

He said that by use of the Ahlfors screen Longview Fibre recovered about one half of the material which formerly had to be board grade instead of paper grade. Horsepower requirements were small, 7½ hp. being used. On the Centri-Cleaners, which they tested for a short time, it was found that 1½ hp. per daily ton of capacity was the ratio. In Vortraps it was 1 hp. per daily ton of capacity. Some of the benefits observed in the use of cleaners were an increased wire life (by 15 percent) and elimination of most of the downtime for patching wires. Also, there was very little downgrading of paper.

Harlan Clodfelter, Spaulding Pulp & Paper Co., Newberg, Ore., reported on the use of Centri-Cleaners and Vortraps in an unbleached sulfite mill. Chips bought from the lumber industry contained a lot of dirt. They installed their first cleaner in 1949 and found that although performance has not been perfect that they have all helped. They found 1.4 hp. needed per daily ton.

Crown Zellerbach's long-time Camas employee, Fred Sievers, groundwood mill superintendent and assistant to the sulfite superintendent, took a broader view. "Cleaning," he said, "is a neglected and underrated process." He claimed that the Europeans have taken the lead in providing cleaning and pulp machinery and processes. He said that fiber separation differs greatly with the species. He advanced the suggestion that although cleaners, as designed, may be well suited to Eastern mills, there was still skepticism that they are the complete answer to Western needs.

M. C. Kaphingst told of "Dirt Count Comparison with Oliver's Ahlfors versus Flat Screens" in the Columbia River Paper Mills, Vancouver. He stated that one half the production at Vancouver is now going over the Olivers. He said it would be some time before they would have data to draw significant tabulations.

Gerald W. Hough, Weyerhaeuser, Longview, gave a paper on "Lindblad Screens in Bleached Kraft Pulp." He said considerable savings in floor space can be made by the use of Lindblads. In for one year, at the Weyerhaeuser mill, they have proven satisfactory, he said.

INTERNATIONAL BROTHERHOOD
MIGRATORY PEDDLERS

WAITING ROOM NO. 1

Presents

A Sensational 3-D Production
(Dismal, Dejected and Dubious)

Entitled

"THE COMMITTEE"

or

"The Birth of a Convention"

(or Better Still)

"Stupidity Triumphant"

Script by Roy Smythe and Herb Beck
Production and Direction by Bill Marshall

The Time: A Couple of Months Ago
The Place: Meeting Room P, Multnomah Hotel

CHARACTERS (If Anyone Cares)

General Chairman	Roy Smythe
Golf	Herb Beck
Food	Roy Shanaman
Ladies' Program	Walt Salmonson
Housing	John Fulton
International President I.B.M.P.	Bill Marshall
Visitor	Sid Drew
Bellboy	Pete Peterson
Pianist	Bob Smythe

STAGE HANDS, PROPERTY MEN, AND HECKLERS AT REHEARSALS

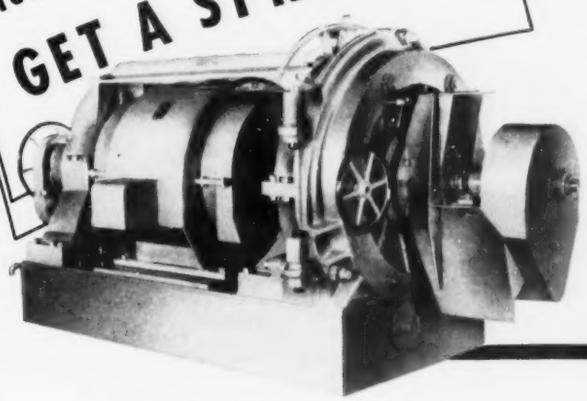
Burke Morden — Milton Maguire
Bill Williamson — Zinc Wise
Ben Natwick — Dan Keating
Bob Baer — "Gob" Dee Marais
Hoke Martin — Bob True
Gordon Petrie — John Ayres
Fred Alsop — Harris Fenn
Dave Fulton — Hugh Osborn
Jack Wilcox

Q. *What's the biggest name in pulp refining?*

A. "SPROUT"

for that pulping problem—
GET A SPROUT!

here's why:



Sprout-Waldron Refiners are chosen by *most* mills for all types of pulping and refining operations. They are the *leading producers* of semi-chemical pulp. For economical pulping and refining, choose a Sprout!

* high pulp quality
* high capacity
* flexible operation
* rugged construction

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- **SEMI-CHEMICAL PULPING, unbleached and bleachable pulps, all grades from corrugating board to newsprint and bond paper**
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- **Insulation Board Fiber Preparation**
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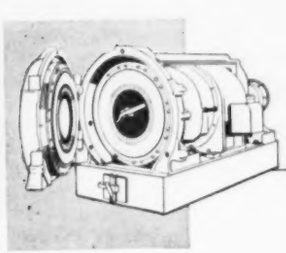
- **Waste Paper Stock Preparation**

For careful analysis and specific recommendations, send your pulping problems to Sprout-Waldron. Address: Sprout-Waldron & Co., Inc., 32 Logan St., Muncy, Pa.

SW



SPROUT-WALDRON

PULP REFINERS

272

PORT ALICE EXPANSION

LESLIE CLEMINSON (left), Gen. Mgr., Cellulose Division, and W. A. BAIN (right), Chief Engineer, of Alaska Pine & Cellulose Ltd.

PRODUCTION OF HIGH GRADE dissolving pulp is the major objective of an important program of expansion and modernization now rapidly nearing completion by Alaska Pine & Cellulose Ltd. at its bleached sulfite mill at Port Alice, northern Vancouver Island, B.C.

The general effect of the improvements now being carried out will be to upgrade the quality of Port Alice's product to such an extent that it will meet all acetylation and viscose requirements and enable the company to serve all world markets independent of the relatively restricted field previously open to it.

The Port Alice program, which represents an investment of some $7,500,000, involves five major projects, according to Leslie Cleminson, general manager of the company's cellulose division. These are as follows:

1. A new steam plant with auxiliary dutch oven.
2. New bleached pulp screen room.
3. Whole log barker and chipping plant.
4. New water supply system.
5. New bleach plant.

Preliminary steps towards this overall undertaking were taken in May 1951, although full-scale construction did not begin until Jan. 1952. Operations were delayed about four months last year by a general strike of construction workers in British Columbia. The first three projects are completed.

Executives of the company believe that when the bleach plant is completed during the coming midsummer, Alaska Pine & Cellulose will have one of the most efficient and modern in the industry—a fully automatic operation requiring only two men to control production at the maximum rate of 300 tons a day.

Details were outlined to PULP & PAPER by Mr. Cleminson and W. A. Bain, the company's chief engineer, who has been supervising the project. R. H. Richmond is plant manager, and Victor S. Bright, field engineer.

One important installation is a second high pressure Combustion Engineering steam boiler, which will virtually double steam capacity. The new unit is rated at 225,000 p.p.h. at 600 lbs. pressure. It was built under the direction of W. O. Stevens, consulting engineer of Seattle and Vancouver.

With the boiler a new dutch oven will burn mill refuse. Steel for the oven was supplied by Combustion Engineering and the brickwork was done by F. Drexel Co., Vancouver.

A new screen and riffler room for bleached pulp have been added. There are 33 Sherbrooke flat screens with Dunbar drives, and four Sherbrooke deckers 48x150, with tile vats built by Stebbins Engineering. Six 5x6 ft. slushers were designed by the company's own engineers.

The new water supply will be ready as soon as the bleach plant goes into operation in July. Provision is being made for delivery of 28,000 U.S. gallons of water per minute from Victoria Lake. This water system will place the whole operation on a self-sustaining basis.

The new woodroom is expected to get 20 percent more wood for chip production. The logs are cut into 24 ft. lengths by a 9 ft. circular Simonds saw, installed with Sumner equipment.

A Bellingham type hydraulic barker similar to the one installed at Woodfibre is operated at Port Alice, with several improvements incorporated—a new nozzle and carriage arrangement, the nozzle being designed to produce a single stream of water. With positive control mechanism the water strikes the log at a predetermined angle as it is rotating, removing the bark.

For logs too large in diameter for the Sumner 175 in. chipper, driven by General Electric Motor, a special sawing device has been provided to quarter the logs in practically automatic operation.

WESTMINSTER'S NEW NO. 3 MACHINE

WESTMINSTER PAPER CO. passed another important milestone recently when J. J. Herb, founder and chairman of the board, unveiled the handsome brass plaque naming the New Westminster, B.C., mill's new Beloit paper machine "Big Jake" and pressed the button bringing it officially into production.

The 135-inch Yankee Fourdrinier is Westminster's third Beloit machine and will be operated for dry crepe production. It incorporates many new features including Beloit airloaded headbox, stream flow valve, cross flow distributor, air-cushioned inlet, removable Fourdrinier, air guides for wire and felts, suction press, suction pressure roll, 12 foot diameter high pressure dryer, air operated reel, tape driven unwind stand and double-drum tissue winder. Dandy type table rolls, side by side calendering are also provided. Beloit Iron Works was represented at the ceremony by J. E. Goodwillie, vice president.

This installation concluded the second major phase of the company's expansion program. It will increase the capacity of the mill by about 60 percent.

Drive for the new paper machine was supplied by General Electric and it consists of two main drive sections, both wet and dry ends being amplidyne controlled as to speed, and each section has a series of helper motors at couch, press and pressure roll, wringer roll, first, second and third calender sections, and reel. The winder drive is also General Electric-built and is amplidyne controlled.

Stock preparation equipment consists of a 14-foot Shartle-Dilts Hydrapulper, two Morden Stock-Makers and two Shartle Selectifier screens. Chests and wire pit are Semtile lined by Canadian Stebbins Engineering. Pumps were by Bingham Pump Co. White water and stock piping is Type 304 stainless supplied through Industrial Coatings, of Vancouver, B.C.

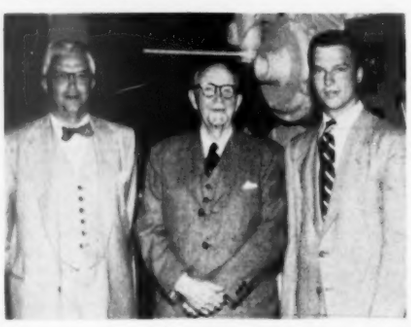
Transite hood and vapor removal system was supplied by Ross Engineering of Canada and features unusually high quantity of recirculated supply air, directed at high velocity against sheets on the dryer. Ross also provided the winder trim system to the Hydrapulper.

Condensate removal is by Midwest-Fulton. Stock regulation is by DeZurik.

As in the previous installations, drying steam is expanded from 600 pounds pressure down to 150 pounds drying pressure through a Worthington turbine directly connected to the paper machine M.G. set.

Actual installation of the machine auxiliary equipment and piping was performed by the company's own staff headed by Mill Manager John Ashby, General Paper Mill Superintendent L. W. Pumphrey and Assistant Paper Mill Superintendent M. A. Bailey.

THREE GENERATIONS OF HERBS are here, left to right: E. M., President of Westminster Paper Co.; J. J., Chairman of the Board and founder of the company; Jack, son of E. M., who is now working at the New Westminster mill.



PRESIDENT ELMER M. HERB of Westminster Paper Co. and RUSSELL GOODWILLIE, West Coast representative of Beloit Iron Works, sample the big Wisconsin cheese brought to celebration of official start-up of the new Beloit machine in New Westminster, B.C.

ARNOLD W. PLIER, new President of D. J. Murray Mfg. Co. F. C. Boyce becomes Chairman. Mr. Plier was with the company since 1930, before that being with the Oconto Falls, Wis., paper mill.

Plier President of D. J. Murray

Arno W. Plier has been named president and general manager of the D. J. Murray Mfg. Co., Wausau, Wis. He succeeds F. C. Boyce, who has become chairman of the board.

Mr. Plier came to Murray from the Falls Mfg. Co., Oconto Falls., Wis., in 1930. In 1950 he was elected executive vice president and general manager.

Wisconsin Wire Produces Movie

The Wisconsin Wire Works, manufacturers of fourdrinier wires, of Appleton, Wis., has produced an unusual color and sound movie, "Weaving Wisconsin Wires," available for industry meetings on request. It tells the complete story of manufacturing from the raw copper to the expertly woven wire. While nature furnished timber and man has found a way to step-up growth and maintain supply, copper has a different story for the source cannot be controlled or increased by man.

The picture provides interesting education on this important phase. Announcement will be made when the film is available.

Big Savings With Wilson Van Washers

Ross & White Co., Chicago Daily News Bldg., Chicago 6, has announced that saving of $7.88 in labor cost has been made on each van washed at Consolidated Paper Co., Monroe, Mich., with the Wilson movable truck and van washer.

The company praised the efficiency of the lone operator required and said the movable washer washes 20 trailers in eight hours. Previous hand washing required eight men eight hours to do the job. The new equipment is a Yale lift truck carrying the Wilson Washer, which weighs 5,000 lbs., when loaded with water. A detergent cleaning system is often an advantageous auxiliary that can be added to the washer unit. Bulletin No. 84, available from the company, gives details.

To Make Polyethylene

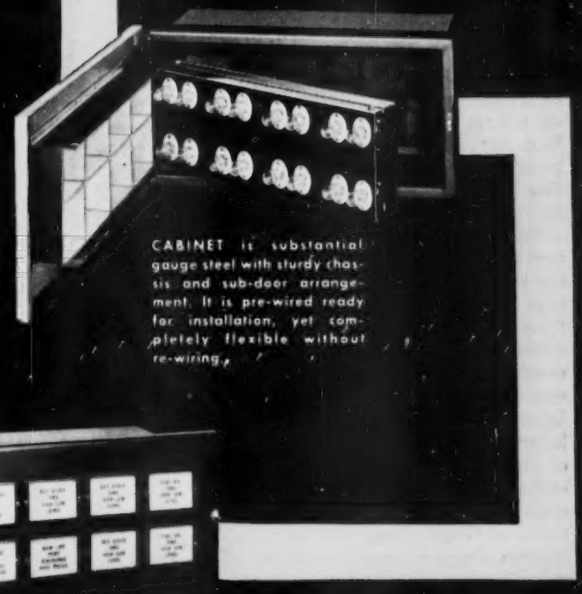
Eastman Kodak is to make polyethylene on an Imperial Chemical Industries Ltd. (British) license in a new 20 million lbs. per year plant at Longview, Tex.

PANALARM "50" ANNUNCIATOR SYSTEMS

NEW functional flexibility with NEW "instrument-type" construction

PANALARM "50" PLUG-IN UNIT . . . hermetically sealed and most versatile ever developed . . . simply plugs into chassis to expand system . . . no wiring . . . no other connections. Corrosion-proof and suitable for Class 1, Div. 2 locations.

Built-in flexibility of PANALARM "50" allows simple change-over to any operating sequence as required by present or future conditions. And, at the same time PANALARM "50" introduces a new instrument-type annunciator construction . . . adding to the long-term dependability of the entire system.



CABINET is substantial gauge steel with sturdy chassis and sub-door arrangement. It is pre-wired ready for installation, yet completely flexible without re-wiring.

PANALARM ANNUNCIATOR SYSTEMS are self-contained with either illuminated name-plates or bullseye visual signals. Both the audible signal and acknowledgment button are common to the entire system.

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CAN GROW TWICE AS MUCH WOOD

By Vernon E. Johnson

President, Canadian International Paper Co.

(Another prominent Canadian, a recognized authority on pulpwood and woodpulp, said by 1975 this continent will be producing 2½ times the forest products which it is producing today. In this article, Mr. Johnson lends encouragement to that outlook).

WE CAN GROW twice as much wood on our forest acres as we are now growing. We can double wood production. In Denmark they grow 104 cubic feet per acre in their coniferous forests. We know of examples, on a large scale, where we grow 40 cubic feet per acre, but on the average the growth is about 14 cubic feet in Canada. The United States grows about 33 cubic feet per acre.

But to get those results we have to act and have a program. What I am wondering is whether we are thinking big enough. Our problem is not simply to grow more trees per acre. It is to harvest them more economically and guard them more successfully. We can make substantial progress if we make more complete use of our forest resources. Research—much of it laboratory research—is important. By way of illustration let me cite an experience of our own—specifically the work of the Industrial Cellulose Research Ltd. laboratories at Hawkesbury, Ont., and the Harrington Forest Farm across the river in Argenteuil county.

Because our pulp mill at Hawkesbury —one of our oldest mills—had been brought up on a diet of softwoods it was beginning to face serious problems back in the early thirties. The available softwoods in the neighborhood were no longer adequate. Pulpwood had to be hauled over long distance—mostly by rail. Hawkesbury simply could not compete with more modern mills better placed in relation to the available softwood supply. It was a case of finding some new solution or closing the mill—and we certainly didn't want to quit if we could help it.

We turned the problem over to research and out of it came a program for manufacturing high grade dissolving pulp from woods available in the Hawkesbury

VERNON E. JOHNSON was recently elected C.I.P. President. He was former Woodlands Mgr. of the company.

area. We stopped thinking in terms of special softwoods hauled long distances and began planning in terms of local woodlots and forest lands—mostly mixed stands including many hardwoods. Moreover, we stopped thinking in terms of closing

How Southland and Champion Reduce Wood Cross-Hauls

Division of forest lands of Texas Long Leaf Lumber Co., operating company of sawmills at New Willard and Trinity, Texas, between Southland Paper Mills, Lufkin, Texas, and Champion Paper & Fibre Co., with a paper mill at Pasadena, Texas, provided an excellent example of cooperation to reduce cross-hauling of pulpwood.

Control of the lumber company was by stock acquisition, after which its directors voted to dissolve. To Champion went 20 percent of the lands, those situated at the southern end along the Southern Pacific and Missouri Pacific lines. The two mills, with 80 percent of the forest land, became Southland holdings.

The lumber mills are being continued as a division of Southland but since over a period of years more timber was taken in harvesting than grew, production will be curtailed beginning in 1954 to afford the lands an opportunity to restock.

Southland is watching with interest the development of log barking and chipping by the lumber mills, according to R. W. Wortham, Jr., company executive vice president.

Hawkesbury and invested $8,000,000 in a modernization program which made the mill fully competitive.

But more important, perhaps, is the fact that flowing out of this use of a great variety of species has come a significant program to encourage tree farming throughout the Hawkesbury-Argenteuil county area and to develop—by education and other means—a perpetually adequate local supply of cellulose. A very large part of it will be grown and harvested by farmers who have learned that trees are a crop like corn and oats and hay—and in many ways more valuable than any of these. At Harringlton we have set up a model Forest Farm so that farmers throughout that area can learn from our experience and experimental work.

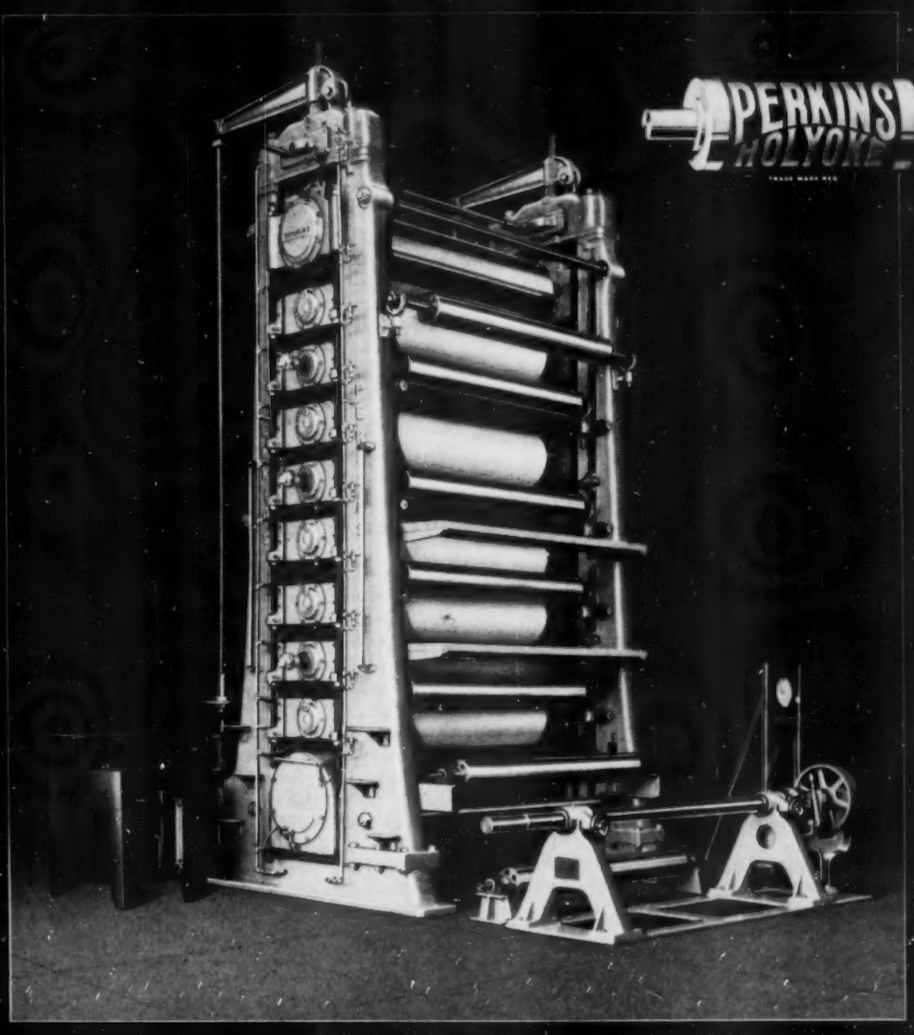
I cite the case of Hawkesbury primarily to suggest that revolutionary changes in the field of forest management can flow from a re-examination of some of our notions about cellulose and its uses.

Pulpwood Project In Ontario

Industry, government and science are joining forces on a research project on Ontario pulpwood lands north of Lake Superior with a view to increasing productivity of the forest.

Abitibi Power & Paper Co., Ontario Paper Co., the Pulp & Paper Research Institute of Canada, University of Toronto, Research Council of Canada and government bodies are co-operating in an intensive study designed to rectify the decline in rate of growth in relationship to utilization. The two paper companies will pay half the cost; the other groups will provide the personnel and facilities. Field work starts on cutting limits of Ontario Paper's in the Lakehead area.

The committee directing operations includes Gordon Godwin, assistant wood lands manager, Quebec North Shore Paper Co.; J. B. Matthews, woodlands manager, Abitibi Power & Paper Co.; W. A. E. Pepler, manager of the woodlands section CPPA, Alexander Koroleff and Dr. Lincoln Thiesmeyer of the Pulp & Paper Research Institute, the latter being chairman. A. R. McKenzie of Abitibi and Bruce Thomson, Ontario Paper Co., alternates.



PERKINS ten-roll 74" Web Supercalender. All rolls in Timken anti-friction bearings. Forced feed oil lubrication to all bearings, with oil pumps. Foxboro air-pressure system. Motor lift for separating rolls. PERKINS CALENDERS are noted throughout the industry for remarkable endurance. . . . They are running steadily, even under the most severe operating conditions, with utmost in power economy.

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HOLYOKE, MASS., U.S.A.

LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

Largest Airforce Fights Budworm in Canada

The largest airforce ever mobilized for a peacetime task in Canada, consisting of a fleet of 75 planes from various parts of the continent, is attacking the spruce budworm in New Brunswick forests.

The campaign is a continuation of last season's offensive when New Brunswick International Paper Co. financed the use of a fleet of planes from Central Aircraft Inc. of Yakima, Wash., for an effective insecticide spraying job that covered 200,000 acres.

This year the war against the budworm is directed by Forest Protection, Ltd., a co-operative organization representing not only last year's sponsor but Bathurst Power & Paper Co., Fraser Companies and Irving Pulp & Paper Co., as well as the New Brunswick government.

The battle is being carried over an area of 1,500 square miles this year, according to B. W. Flieger, manager of Forest Protection Ltd. Total cost will be several million dollars, the provincial government footing one third of the cost of spraying 2,500,000 acres. Entomologists report that 5,000 square miles of forest in New Brunswick are already attacked by budworm, so the war may be continued in 1954. Certainly no other similar program of such magnitude has ever been attempted.

Fifty-five of the specially equipped planes for the 1953 offensive will be supplied by Central Aircraft, Inc.

Cooperative Campaigns Against Southern Insects

The Southern pine beetle outbreak which damaged forests in seven counties of southwestern Mississippi last year, is being brought under control through the cooperative efforts of entomologists and foresters of federal and state agencies, and private landowners. Surveys and control activities will be continued in the infested area until the outbreak has been controlled.

In a U.S. Forest Service report on important forest insects of the U.S., the entomologists said that chemical spraying of unmerchantable logs, combined with prompt salvage and conversion to lumber of infested timber, has been mainly responsible for effecting a striking reduction of the outbreak. (Accumulations of infested timber are a source of feed for the beetles and helps increase their numbers.) By autumn of 1952 nearly 9 million board feet of timber had been salvaged from southern Mississippi National Forest holdings alone, the entomologists said, and more than 4½ million board feet equivalent of pulpwood had been sold.

Another serious insect pest of Southeastern forests, the black turpentine beetle, did considerable damage to trees in limited areas of Florida forests in 1952, according to the USDA report. A survey showed the infestations, although heavy in localized areas, were diminishing.

The loblolly pine sawfly infestation continues at moderate intensity in southern Arkansas, and is building up in numbers in northern and southern Louisiana, and in east Texas.

Schield Bantam Shows New Crane in Booklet

A new 6-page illustrated bulletin describing their 6-ton, ⅜-yard Model T-35 truck crane has just been issued by the Schield Bantam Co., Waverly, Ia. The new bulletin contains detailed mechanical specifications, together with complete dimensions and operating data, including information on various truck mountings and typical interchangeable attachments used with the Bantam crane boom.

A full page of the new bulletin provides complete data on weights, applications and approximate production output of 8 different attachments including: ⅜-yard clamshell and dragline buckets; ½-yard concrete bucket; ¼-cord wood grapple; 29 in. electric magnet; scrap grapple; pile driver, and auto body compressor.

Free copies of the new T-35 Bantam Crane bulletin can be obtained from local Bantam distributors, or by writing Schield Bantam Co., Waverly, Iowa. Ask for Bulletin No. TCR-201.

New Tree Planting Record Is Claimed in South

A new record for mass planting of pine seedlings by private industry was claimed for the Gaylord Container Corp. at Bogalusa, La., whose holdings in Louisiana and Mississippi are believed to constitute the largest privately-owned man-planted forest in the world. During the planting season just closed, Gaylord planted 18,630,000 seedlings on 24,770 acres in the two states, said Paul Garrison, Gaylord's chief forester. This was more than three times greater than its record of 7,694 acres planted during the 1951-1952 season and make an all-time total of 98,843 acres Gaylord has planted since beginning the program in 1920.

Greeley Named Alaska Forester

Arthur W. Greeley, assistant to the director of the Pacific Northwest Forest and Range Experiment Station, Portland, Ore., has taken his post as regional forester for Alaska. He succeeded B. Frank Heintzleman, who recently was appointed governor of the territory. As regional forester, Mr. Greeley will be responsible for the administration of 20,742,762 acres in the Chugach and Tongass National Forests, particularly valuable for their pulpwood. It is estimated that they could supply a million tons of pulp per year forever, and Ketchikan Pulp Co., with a daily capacity of 350 tons, is already under construction.

A Pulpwood "Oasis" In State of Wyoming

Add Wyoming to the pulpwood-producing states.

It is not generally known that for some time the northeast area of Wyoming has been a producer of pulpwood for Nekoosa-Edwards Paper Co. Operations are all by gyppos in the vicinity of Buffalo, Wyo., in U. S. Forest Service timber.

Output varies but it averages about 2,500 cords per year.

This pulpwood area is approximately 400 miles from the larger pulpwood operations around Bozeman, Montana, for three Wisconsin kraft mills. It is much farther in the other direction from the western Colorado logging for Consolidated Water Power & Paper Co.

BIG PRODUCTION AT CANTON

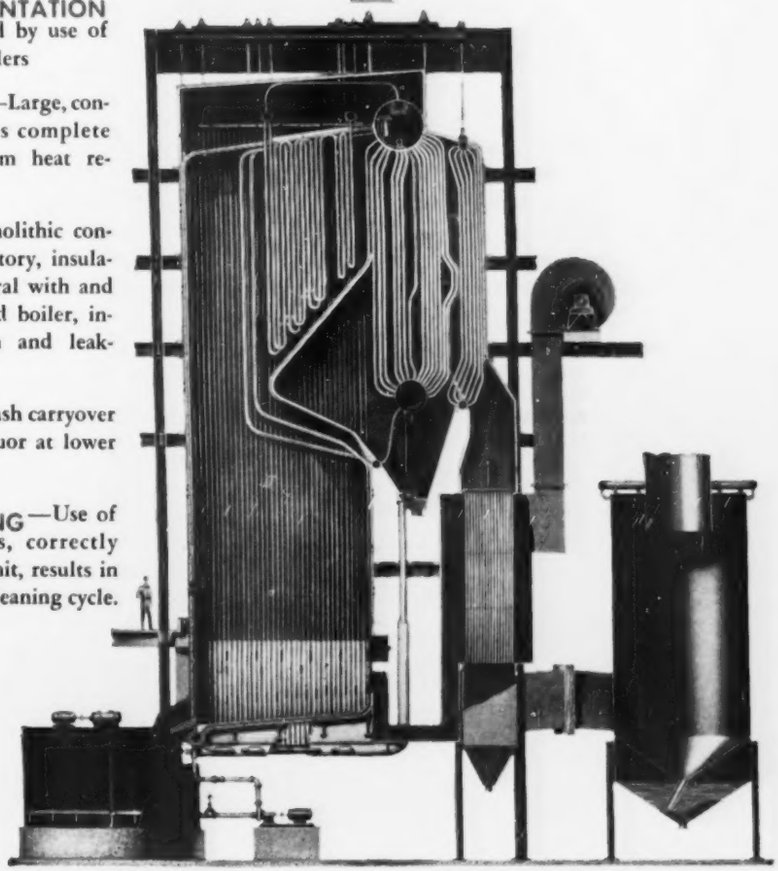
A 16-hour working day for this LORAIN L50-K log loader has the machine handling from 250 to 300 cords of 5 ft. pulpwood at the Canton, N. C. plant of the Champion Paper and Fibre Co. A BLAW-KNOX Wood Grapple is being used.

Improved Design Features of B&W Recovery Unit assure . . .

MAXIMUM EFFICIENCY

in Chemical and Heat Recovery

- **COMPLETE INSTRUMENTATION**—Combustion is stabilized by use of automatic air-flow controllers
- **LOW FURNACE DUTY**—Large, conservative furnace assures complete combustion and maximum heat recovery
- **TIGHT SETTING**—Monolithic construction, in which refractory, insulation and casing are integral with and supported on furnace and boiler, insures uniform expansion and leak-proof setting
- **CLEAN BOILER**—Low ash carryover is the result of firing liquor at lower per cent solids
- **NO ROUTINE LANCING**—Use of improved soot blowers, correctly located in the recovery unit, results in a thorough and efficient cleaning cycle.



Typical modern B&W Two-Drum Recovery Unit equipped with B&W Cyclone Evaporator.

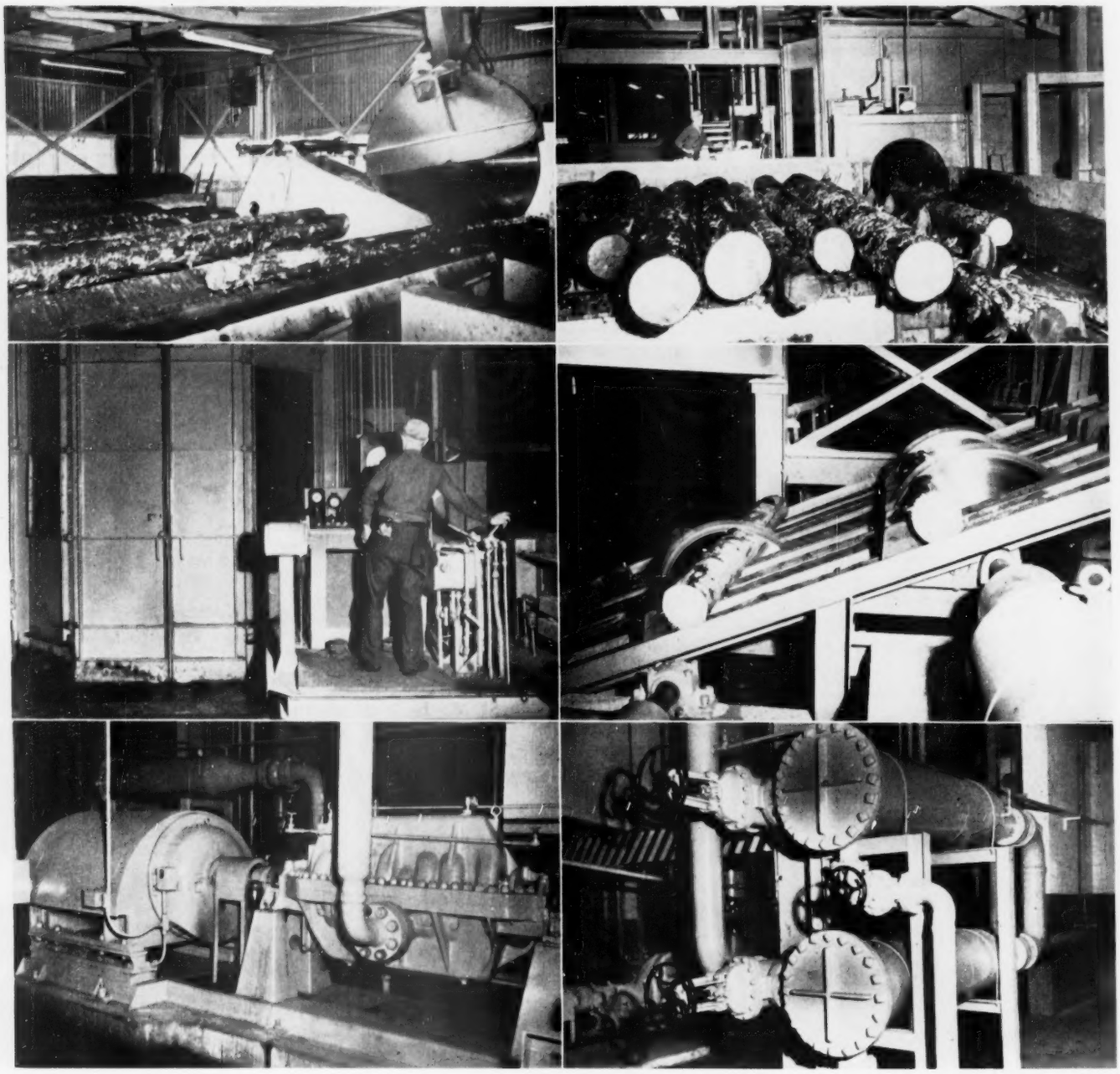
BABCOCK & WILCOX

THE BABCOCK & WILCOX COMPANY
161 East 42nd Street
New York 17, N. Y.

P-780

MODERNIZED C-Z WOODROOM

SMALL LOG PROCESS IMPROVED, MORE CAPACITY ACHIEVED

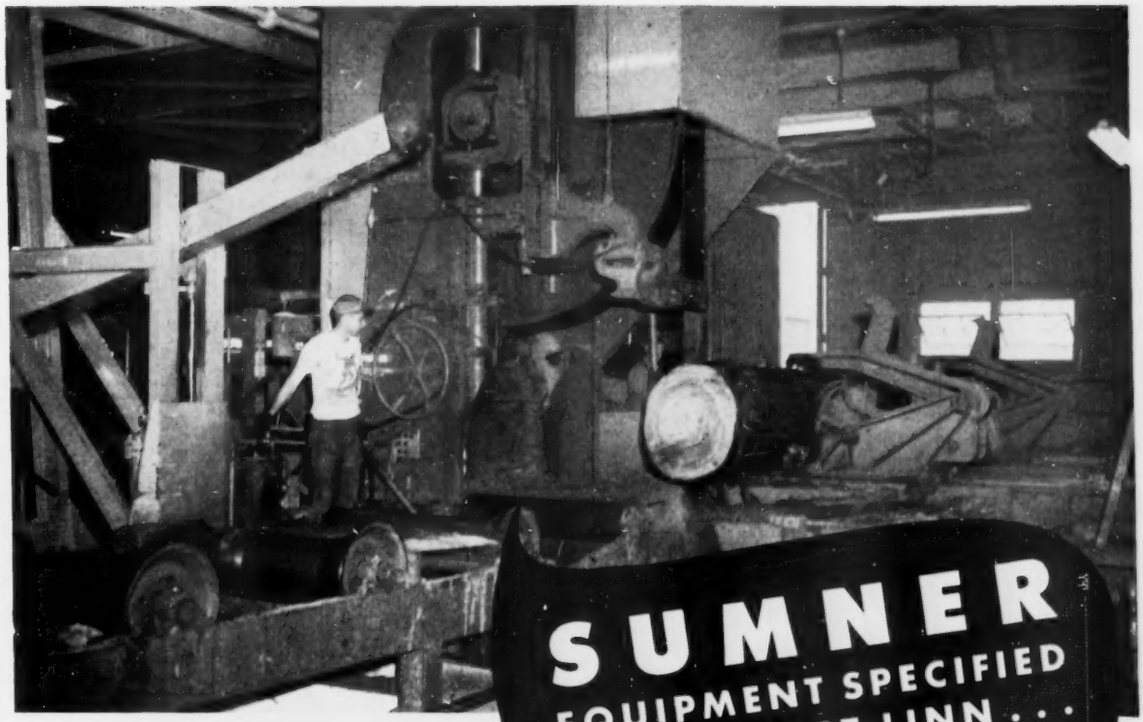


SECOND PHASE of a three-step woodroom modernization at Crown Zellerbach Corp's. West Linn, Ore., plant was completed this spring. The new addition provides effective means for hydraulically barking logs up to 30 in. diameter and completely processing logs up to 12 in. diameter independently of facilities processing the larger logs. This results in increased woodroom capacity, and more efficient processing of small logs, prevents overloading drum barkers and extends scope of wood utilization.

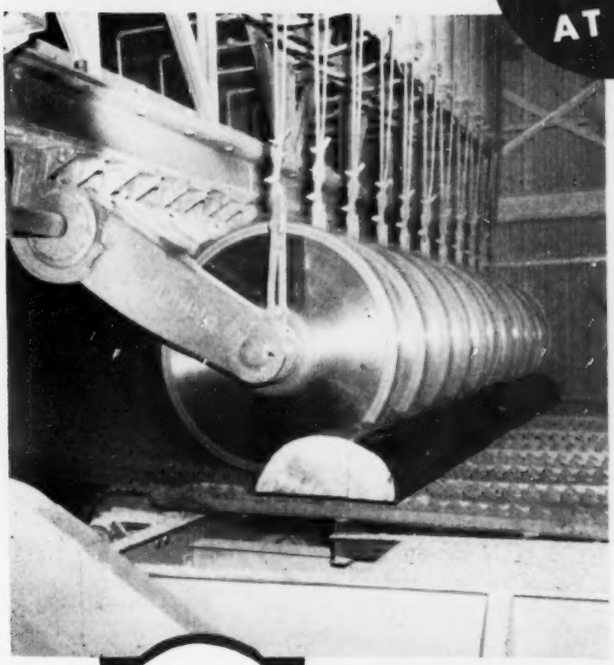
Wood leaves the woodroom in 2 ft. lengths. Clean, barkfree pieces go to chippers or grinders without further processing and "dirty" or barky wood to drum barkers.

The program's first stage, described in March '52 PULP & PAPER, consisted of an ultra-modern steel and concrete plant with latest in processing facilities. These include a 10-ft. band headrig in conjunction with air-operated electrically-controlled carriage and mechanical offbearer for converting logs into cants; a twin 72-in. band resaw for reducing cants to components of 12 in. width or less, and an 11-

NEW CROWN ZELLERBACH West Linn, Ore., facilities: Top left: NEW SMALL LOG transfer leads to barker from behind this cutoff saw.
Top right: ENTRANCE TO HANSEL ring type hydraulic barker manufactured by Washington Iron Works of Seattle.
Middle left: HANSEL BARKER and operator's platform. Two gauges on housing front indicate ring's adjustment for logs of certain diameters.
Middle right: SUMNER IRON WORKS Eastern type slasher converts 8 ft. log (right) into two 4-footers (left) and 4 ft. lengths to 2 ft.
Lower left: BINGHAM 800 gpm multiple stage barker pump driven by Westinghouse 900 hp. 3579 rpm. motor. Above motor, upper left, is Northwest Copper Works basket strainer to remove foreign material.
Lower right: ANOTHER VIEW of Northwest Copper Works (Portland, Ore.) basket strainers.



SUMNER EQUIPMENT SPECIFIED AT C-Z, WEST LINN . . .



As a part of their continuing program of plant expansion and modernization, Crown-Zellerbach has specified SUMNER equipment for their new Wood Room at West Linn, Oregon.

Illustrated above are the SUMNER-built Michaels Mechanical Offbearing devices; 10-foot Band Mill; and No-Man Carriage. At left is the SUMNER special design 11-saw chain drive Air-Life Trimmer.

Other SUMNER equipment at West Linn includes a 108" Swing Saw and a Twin Band Rip which accommodates cants up to 60" wide.

Designers and Builders of Pulp and Paper Mill, Sawmill, Boardmill and Shingle Mill Equipment

ESTABLISHED 1892

SUMNER IRON WORKS

EVERETT, WASHINGTON

Affiliate: CANADIAN SUMNER IRON WORKS, LTD., VANCOUVER, B. C.
Distributors: E. J. NEIL CO., MANILA; C. T. TAKAHASHI CO., TOKYO
Manufacturing Licensee: VICKERS RUWALT PTY., LTD., RICHMOND, E. 1, VICTORIA, AUSTRALIA

saw trimmer for reducing prepared pieces to 2 ft. lengths.

Whole log chippers will be added in the final phase of this program. Also a new wood conveying system with capacity for longer wood, eliminating the need for reduction to short pieces.

Logs continue to move from Willamette River log pond to the mill via Esco manganese steel log haul chain and are reduced to 24 ft. or shorter by either a 108-in. circular swing saw or an auxiliary 90-in. chain saw. With completion of the first modernization phase, logs leaving these saws remained on the prime conveyor and were transported to live storage area adjacent to the carriage. Now logs 30 in. diameter and smaller are routed from this conveyor—just behind cut-off saws—to a new transfer terminating at a conveyor which takes logs through the barker onto rolls behind it.

At these rolls the barked logs are segregated—those over 12 in. diameter discharged to the left onto a transfer returning them to the main conveyor leading to breakdown headrig; logs 12 in. and smaller are discharged to the right onto a transfer leading to small-log breakdown.

Small logs are cut to 8 ft. or shorter, by a 54-in. swing cut-off saw. Feed chain carries these through one of three 42-in. Sumner Iron Works slasher saws, converting the 8 ft. logs into two pieces 4 ft. long. Each of these is carried by the chain to one of the other two saws and there reduced to 2 ft. lengths which are discharged onto a sorting gate.

This sorting gate directs wood requiring further cleaning to drum barkers and clean wood to chippers and grinders. Sumner also furnished the small-log swing cut-off saw unit, transfers, conveyors and kickers of this recent addition.

The Hansel ring-type barker manufactured by Washington Iron Works removes bark by a series of high-pressure water jets applied from the ring which revolves around the logs. A Bingham 800 g.p.m. multiple-stage pump, direct powered by 900 h.p. 3578 r.p.m. Westinghouse induction motor, furnishes river water treated in mill's filter plant at 1200 to 1400 p.s.i. The water goes through two Northwest Copper Works 14-in. basket strainers before the pump to remove foreign materials. Discharge from the barker flows to two vibrating screens, fibers and bark going to fuel and water is sewered.

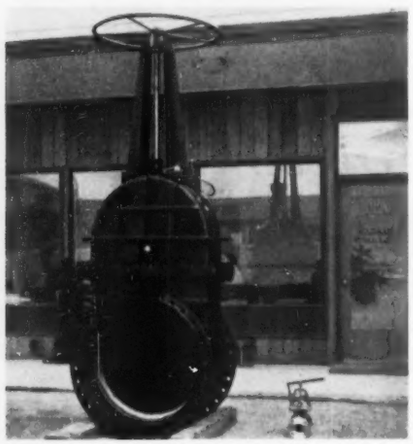
From his operating station, the barkerman can see the transfer from main log conveyor, the barker in operation, and part or all of both barked-log transfers.

As currently set up, about 25,000 board feet of logs per hour are processed in 12 shifts per week. This whole addition is manned by two operators per shift—barkerman and slasherman-log cut-off saw operator, who also routes logs to transfer ahead of barker and controls re-entry of barkfree logs to main log conveyor in addition to duties of the job prior to cutting in the second-stage component.

Electric power is supplied to cubicle room at 11,000 volts, there reduced to 2300 volts for pump motor and to 550 volts for other motors.

CZ's Central Engineering Dept., Seattle, designed and supervised the addition. L. H. Hoffman, Portland, Ore., contractor, erected the buiding and installed equipment.

A 36 INCH FABRI-VALVE of the type installed at Crown Zellerbach West Linn Ore., Mill in new woodroom and furnished by Northwest Copper Works, Inc., Portland, Ore. This is of mild steel construction with bronze discs and seats for water service.



Yale School Grants

Three new grants total $210,000 to support research and fellowships for graduate study at Yale School of Forestry.

Weyerhaeuser Timber Foundation of Tacoma, Wash., has donated $100,000 to establish the Charles S. Chapman Memorial Fund.

Crossett Lumber Co. of Crossett, Ark., Fordyce Lumber Co. of Fordyce, Ark., and others, including the Watzek family have contributed $80,000 to establish the Ralph C. Bryant Memorial Fund, named for a former Yale professor.

Crown-Zellerbach Foundation of San Francisco, has donated $30,000 to establish a regional fellowship fund.

The late Charles S. Chapman was a member of the first class—1902—graduated from the school and was one of the first professional foresters employed by Weyerhaeuser.

Raybestos-Manhattan Expands in Northwest

Littleton C. Barkley, general sales manager, Raybestos-Manhattan, Inc., West Coast Division, with headquarters in San Francisco, has announced that the company will occupy a new warehouse at 2440 Sixth Ave. So., Seattle, Wash., about August 1, 1953. It will also house the Pacific Northwest offices of the company. It will have approximately 6,000 sq. ft. of floor space, and complete stocks of industrial rubber goods, packages, asbestos textiles and Teflon products will be carried. P. H. Hagen, Pacific Northwest district manager of Raybestos-Manhattan, Inc., will be in charge.

Two new men have been added to the sales force in the Pacific Northwest: Richard Bammert, field man in Washington, out of Seattle, and Chester B. Duryea, field man for Oregon, with headquarters in Portland.

LOG CHIP CONVEYOR

PREVIEW OF WEYERHAEUSER'S new market kraft pulp mill being built on Snohomish River in north Everett, Wash., showing only part of unusually long enclosed chip conveyor which crosses highway and two railroads from big Weyerhaeuser sawmill, where former waste wood is to be barked and chipped.

I. P. Sets New High Production Record

International Paper Co. reported production at record high levels in the first quarter of 1953—1,002,000 tons of primary grades, highest for any quarter in its history and at rate of 4,000,000 tons per year, which would also be an all-time record.

First quarter sales were $166,521,586, about $3,000,000 over the first quarter of 1952.

The company has begun to implement an incentive stock option plan for key employes. Seven executives and 54 other key employes from mills, woods, sales and general staff now have options to buy 92,150 shares of common stock. Another 157,850 shares are reserved for future use under the plan. Non-management board members are guiding plan operation.

Hardwoods Newsprint

First full run of partial hardwoods newsprint in the U.S. was made for one issue of the Bangor, Me. *Daily News* recently. The sheet contained over 30 percent hardwood groundwood. The newsprint was made at Great Northern's East Millinocket, Me., mill, which has been making 50 tons daily of hardwood groundwood since February and will increase this to 175 tons daily in the summer of 1954 when a new paper machine is added.

A second new machine is to be added in 1955, when hardwood groundwood production will be again increased to 250 tons a day.

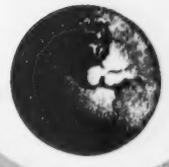
Manuel C. McDonald, president of Great Northern, said the partial hardwood newsprint was made without need of any machine change and its opacity, strength and ink absorption were about the same as orthodox newsprint.

Livingstone in Crash

Don Livingstone, Esco Ltd., Vancouver, B.C., Canadian subsidiary of Electric Steel Foundry Co., had to swim for his life in a recent plane crash near Prince Rupert, B.C., when he went there to call on the Celanese mill. Two others in the plane were killed.

WOOD PULP
PAPER

Offices and representatives in 60 cities in the United States, Europe, Latin America, Africa, and Asia



BULKLEY, DUNTON & CO., INC.
BULKLEY, DUNTON PULP CO., INC.
BULKLEY, DUNTON PAPER CO., S. A.
BULKLEY, DUNTON CELLULOSE EXPORTS, INC.
BULKLEY, DUNTON PAPER (FAR EAST) CO., INC.
BULKLEY, DUNTON PROCESSES, INC.
In New England—CARTER, RICE & CO. CORPORATION
and STORRS & BEMENT COMPANY

BULKLEY, DUNTON
ORGANIZATION
295 MADISON AVENUE, NEW YORK 17, N. Y.

CRITICISMS OF PALEY REPORT

CANADA'S FOWLER COMMENTS ON RESOURCES AND TARIFFS

NEED FOR A DEPENDABLE INVENTORY of the country's forest resources is being emphasized by industry leaders in the United States and Canada as the extent and diversity of wood utilization increases.

Not until the actual and potential forest wealth is known with a greater degree of accuracy can long-term plans for expansion on an industry-wide or national basis be developed with complete assurance.

Most individual companies operating in the forest industry have made it their business to ascertain present and long-term yield of the areas under their control, but there is still a conspicuous lack of agreement on the broader national level as to the volume of raw material that industry has to work with now and during future years.

An attempt was made to ascertain the extent of the forest resources of the United States and the degree of their future productivity by the Materials Policy Commission appointed by President Truman and headed by William S. Paley, but many men who speak with authority born of practical experience contend that the Paley report was based on too hurried and superficial study to be a reliable guide. There is widespread hope in the industry that the United States Timber Resource Review, to be completed in 1954, will give a more realistic and trustworthy picture of the situation.

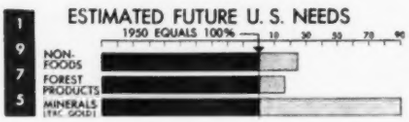
The Paley report has been criticized in some quarters as being unjustifiably pessimistic in its over-all conclusions. It states that annual growth of timber of all kinds already is almost in balance with drain from cutting and from losses caused by fire and epidemics, and that it seems likely that before 1975 total growth will be running somewhat ahead of total drain. But the Paley report argues that for saw timber the rate of drain in non-virgin stands exceeds the growth rate by about 40 percent, and that when the remaining virgin forests are also considered the discrepancy is even greater, for these forests "put on no substantial net growth."

The report concludes that the U.S. has "crossed the great industrial divide and from being a nation with a surplus of raw materials has become a deficit nation."

Foresters and timber operators who have had an opportunity to study the growth potential of the forest challenge the assumption that the forests of the U.S. may be considered as approaching the "have-not" category such as may be faced by some metals and other wasting resources. These critics maintain that the Paley analysis, such as it was, resulted from bureaucratic investigation in which industry had little or no chance to participate. It is further claimed that the data on which the report was based was for the year 1945 and that no consideration was given to the tremendous strides, technological and otherwise, that have been made since then; that many of the tree species considered unusable in 1945 are now being processed; that forest areas believed inaccessible then are now being harvested with equipment and methods previously unavailable; that salvage possibilities in the forest were ignored as well as improvements in fire protection technique and growth potential. Furthermore, it was complained that the Paley report took scant notice of the influence of economics—the fact that increasing values would make acceptable today materials that a few years ago would have been regarded as waste.

In other words, if industry's spokesmen are to be believed, the Paley report falls short of what it was intended to be—a reliable beacon on which forest-using industries could set their course with reasonable certainty that tomorrow's supply of raw materials was not being jeopardized.

One of the recommendations of the Paley report was that purchase of raw materials from other countries should be encouraged where they would augment domestic supplies facing depletion, although this was not specifically aimed at forest products. The country which obviously would be affected by such a policy is Canada, which has been exporting considerable quantities of pulpwood and saw logs to the United States for many years.



But in Canada the trend has been towards gradual curtailment of the export of raw materials such as logs and pulpwood because national policy encourages domestic manufacture wherever possible and because Canada, like the U.S., is not too sure of her own forest strength. Canada dominates the newsprint field and will probably continue to do so, but even for newsprint some doubt is being expressed as to whether long-term supply for the best groundwood pulp species is adequate for continued high-level production of Canadian mills.

"To make good newsprint you need two things," declared Robert M. Fowler, president of the Canadian Pulp & Paper Association, when addressing the Inland Press Association in Chicago recently. "You need an abundance of cheap power to grind the wood into groundwood pulp, and you need—not any kind of wood—but some of the best pulpwood to be had.

"At the present stage of the papermaking science," continued Mr. Fowler, "you can use some of the less expensive tree species, such as poplar and the hardwoods (in eastern Canada) in the manufacture of the better grades of writing and book papers, but you cannot use them to make the kind of newsprint for the kind of newspaper you have developed in this country."

And Mr. Fowler added: "Over the next 25 years one of the major problems for your (publishing) industry and ours will be of finding ways to keep the softwoods of Canada for use in making newsprint against the competition from other forest products."

Possibly influenced by the Paley report, Mr. Fowler stated that it seemed likely that in the next 25 years the demand on the larger saw-log sizes for lumber and building materials would exceed the growth and this might force the use of smaller tree sizes for the manufacture of synthetic lumber.

"Together, Canada and the U.S can, we believe, not only be self-sufficient in forest products but also able to supply newsprint and other pulp and paper products to friendly nations throughout the world," concluded the Canadian executive.

Addressing the Economic Forum of the Canadian Club in New York a few days later, Mr. Fowler again referred to the subject. He said that throughout North America industry would not be making full use of the country's hardwoods and there would be a surplus of the smaller softwood trees, this reserve being mostly

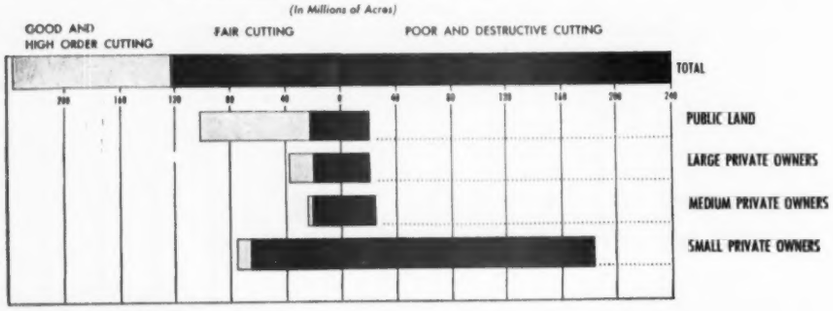
Continued on page 93

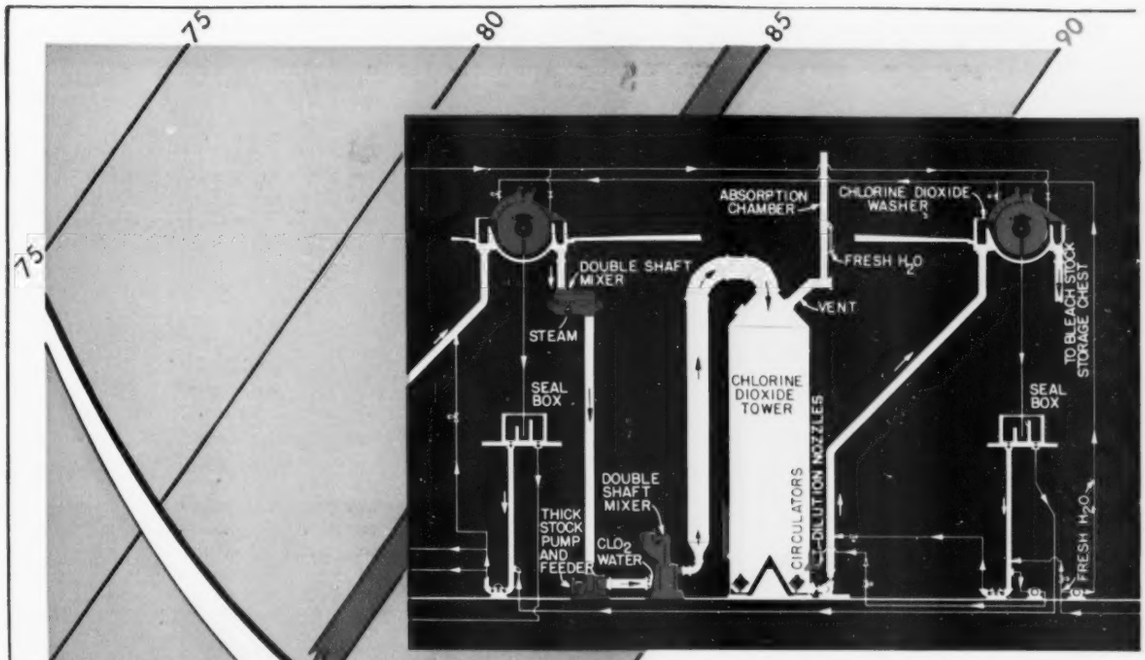
—THE PALEY REPORT PUBLISHED CHART ON U.S. CUTTING PRACTICES.

POOR CUTTING PRACTICES WASTE FOREST RESOURCES

U. S. COMMERCIAL FOREST ACREAGE – 1945

(In Millions of Acres)





GET THROUGH...

THE "BARRIER EFFECT"

TO 90 G.E. BRIGHTNESS

IMPCO SINGLE STAGE CHLORINE DIOXIDE BLEACHING SYSTEM

The use of chlorine dioxide in pulp bleaching is now commercially practical and new methods of generating this oxidizing agent make its use available to anyone.

Impco has incorporated into a single stage of ClO_2 desirable features, namely, the thick stock pump, the double shaft mixer, and a pressure reaction bleaching tower — which give results unobtainable in ordinary types of high density towers.

We welcome the opportunity to work with you on your bleaching project.

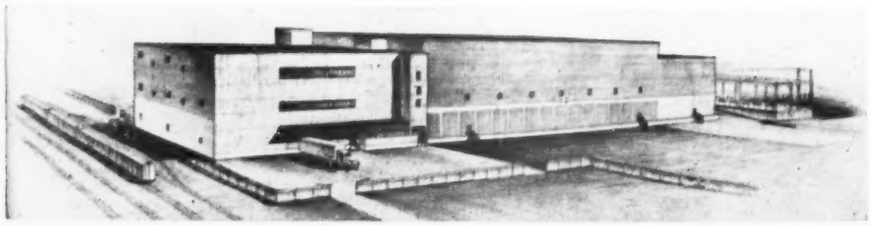
- **Highest Brightness**
- **Excellent Pulp Quality**
- **No Strength Loss**
- **Low Chemical Costs**
- **Reduced Pulp Shrinkage**
- **Lower Solids to Sewer**
- **Fits Any Existing System**

IMPROVED MACHINERY INC.

NASHUA, NEW HAMPSHIRE

Sherbrooke Machineries Limited, Sherbrooke, Quebec, manufacture similar equipment in Canada.

J-33



ARCHITECT'S DRAWING of the new Scott Paper Mill at Everett, Wash., being built alongside Soundview Pulp Division. Building is now under construction and it is expected that the first new Beloit tissue machine will roll paper around Jan., 1954. The structure was dedicated May 14 by Executive Vice Pres. Raymond C. Mateer and Vice Pres. U. M. Dickey.

SCOTT LAYS CORNERSTONE OF BIG MILL

IN IMPRESSIVE CEREMONIES at Everett, Wash., on May 14, Executive Vice President Raymond C. Mateer and Vice President Umberto M. Dickey sealed in the cornerstone for the Scott Paper Co.'s new $17,000,000 paper mill, its first on the West Coast.

Later the same day at the Everett Golf Country Club, Mr. Mateer announced that a second paper machine has been ordered. This machine will be installed also in 1954, perhaps six or eight months after the first big Beloit machine with General Electric drive starts up early in 1954.

Mr. Mateer stated that the diversion of pulp material to this new paper mill will be covered by an increase in pulp production at Soundview Division and that the company will still remain actively engaged in the sale of pulp. An estimated 100,000,000 units of paper products per year is the contemplated goal of the new mill.

The products to be manufactured will be three lines of toilet tissue, napkins (Scotkins), and the new Scott industrial wipers.

Many guests from industry attended, as well as civic dignitaries. Hundreds of employes and members of their families and friends also were on hand.

Master of ceremonies was G. Willing Pepper, vice president from Chester, Pa., who praised the Pacific Northwest and cooperation shown by personnel of the former Soundview Pulp Co., following merger of the two companies.

Mr. Pepper said it was quite a pleasure to introduce the first speaker, a man to whom he speaks regularly on the telephone at a distance of 3000 miles away and asks for "quick answers to tough questions" on the Everett operation. This man was Paul C. Baldwin, assistant vice president of the company now located at Everett, whom Mr. Pepper described as "the one who breathes life into this new operation Scott is building, a risk which a few years ago the company could not have undertaken." Mr. Pepper presented Mr. Baldwin with a crystal ball which he hoped would provide a few answers for the 3000-mile phone talks.

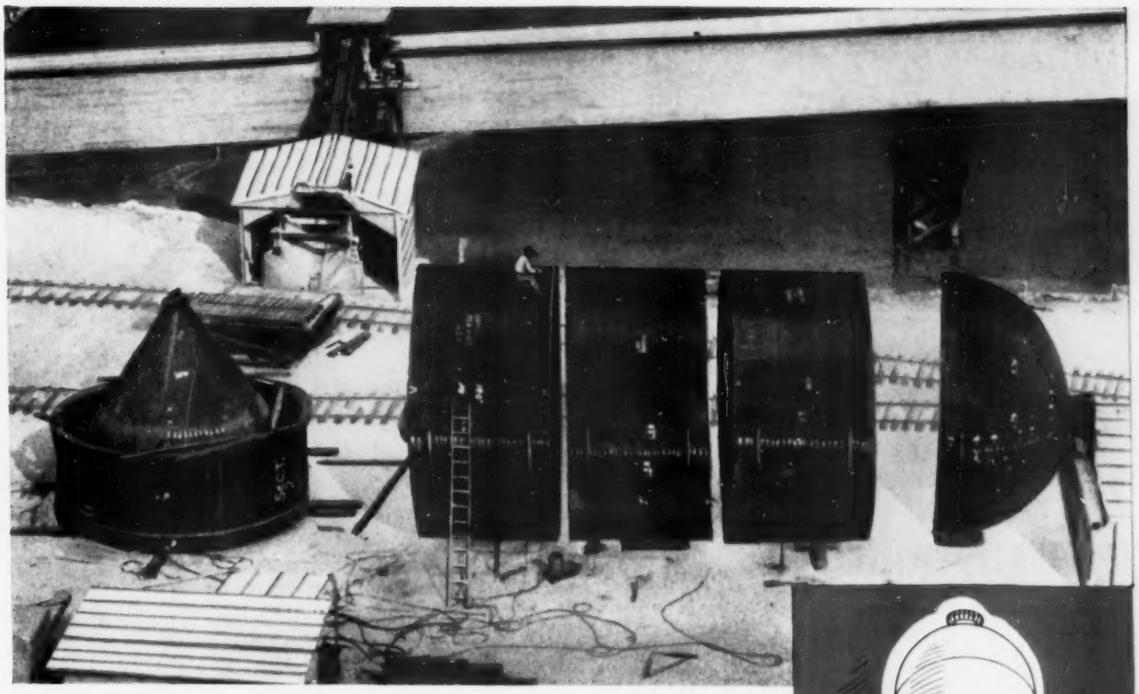
Mr. Baldwin enumerated the articles to be sealed into the copper can inside the new cornerstone. They included samples of Scott products, a list of employes of the Soundview Division, a copy of the local paper carrying an announcement of this new mill, and a program. At the luncheon, he presented on behalf of the Soundview Division a leather portfolio of Northwest photographs to G. Willing Pepper.

TOP VIEW: SCOTT EXECUTIVES watch as plant employe seals copper container inside the new cornerstone of paper mill at Everett, Wash., which bears the figures "1953." Facing camera, from left, PAUL BALDWIN, Assistant Vice Pres.; G. WILLING PEPPER, Vice Pres. (at mike); U. M. DICKEY, Vice Pres.; and RAYMOND C. MATEER, Executive Vice President.

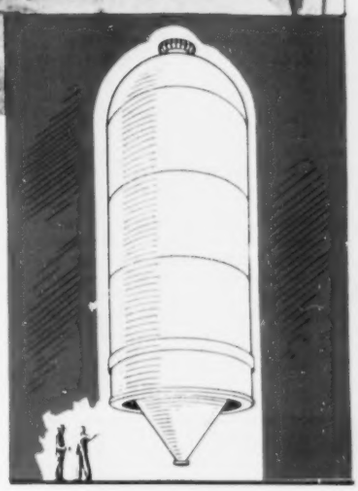
SECOND ROW (l. to r.): N. W. COSTER, who heads both pulp and paper manufacturing now for Scott Paper Co. at Everett; BUD JOHNSON, Chief Engineer, Scott Paper Co., Everett; BILL GORBUTT, Safety and Personnel Supervisor, Scott Paper Co., Everett. LEO BURDON, Assistant Vice President, Everett, Wash., in charge of coordinating all western mills of Scott Paper Co.; L. N. REICHMANN, Resident Manager, Weyerhaeuser Timber Co., Everett; J. A. NORWAY, Executive Vice Pres., First National Bank of Everett; R. J. LEROUX, Pulp Mills Manager, Weyerhaeuser Timber Co., Everett; and PAUL C. BALDWIN, Assistant Vice President, Scott, Everett.

THIRD ROW (l. to r.): OTTO HARTWIG, retired Crown Zellerbach General Safety Director, now a consulting safety engineer, Portland, Ore.; V. O. TESSIER, Northwest Division Sales Manager, Scott Paper Co.; J. L. HEATHCOTE, Divisional Manager, Safeway Stores, Seattle; MYRON RODGERS, Scott's Oregon representative, Portland; EARL F. ANDERTON, Plant Manager, Coos Bay Pulp Corp., Empire, Ore.; CHARLES W. CARD, now Pacific Coast chief of Scott's industrial sales, San Francisco; J. BUDD BREIDENSTEIN, Area Sales Manager, Scott Paper, Denver.

BELOW (l. to r.): HOLDING SILVER SOUVENIR TROWELS following laying of the cornerstone are, left to right, UMBERTO M. DICKEY, Vice Pres., Scott Paper Co., former President of the merged Soundview Pulp Co.; MISS BARBARA BALDWIN, daughter of Assistant V.P. Paul Baldwin, and RAYMOND C. MATEER, Exec. V.P. from Chester, Pa. R. L. SIMMONDS and K. L. HOWE, Westinghouse, Seattle.



140 tons of chips per cook!



When welded into a complete unit this became the world's largest lined sulphite digester. 58 feet in height, the inside diameter is 19 feet, and it will take about 140 tons of chips per cook. The inside is Smithlined, bonded to the carbon steel digester walls by A. O. Smith's time-proven process of closely controlled resistance spot welding.

That's the capacity of Rayonier's new Smithlined Sulphite digester installed at their Fernandina, Florida Division

Important news to pulp and paper men, because it means more pulp production per day.

Important news to paper men also, to know that A. O. Smith had the design engineering, manufacturing know-how, and plant facilities to successfully handle this huge digester from blueprint to finished installation.

HERE'S HOW WE DID IT!

1. Our metallurgical and welding engineers, who have been working with Rayonier for a number of years on the use of corrosion resistant linings for digesters, collaborated with their engineers on the selection of the corrosion resistant linings and welding procedures.
2. Too big to be shipped in one piece, our design engineers planned the production for a maximum amount of shop assembly to hold expensive field construction to a minimum.
3. Furnished field welding specifications that produced a digester of the same rigid high quality standards as those manufactured under the exacting controls of A. O. Smith shop practice.
4. Provided a welding engineer with over 20 years' experience to control the execution of the specifications, hire, qualify, and supervise all welders and personally handle and evaluate all test procedures.

Consult A. O. Smith on your next vessel problem. Contact the nearest district office listed below.

78th ANNIVERSARY 1874 1952

A.O.Smith

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NEWS IN PICTURES—ABOUT INDUSTRY MEN COAST TO COAST

FOR EVERETT PULP & PAPER

ANSON MOODY (left), Vice Pres. and General Manager of Everett Pulp & Paper Co., Everett, Wash., and DONALD F. McCALL (right), who resigned from Racquette River Paper Co. to become Assistant General Manager of the Everett mill, which is a division of Simpson Logging Co. His appointment was announced by W. G. Reed, Simpson Chairman. Mr. Moody was recently elected new President of the Pacific Coast Association of Pulp & Paper Mfrs. and Mr. McCall has served as President of the Sulfite Paper Mfrs. Assn. He has been Vice Pres. and Director of Racquette River, heading sales in its New York office. He worked in various mill departments at the mill in Potsdam, N.Y., which is similar in size and character to Everett P & P. Initially he also will head sales for Everett P & P, which under Mr. Moody has completed extensive modernization of machines, bleach plant, woodroom, etc., throughout the mill.

PROMOTED IN MEAD CORP.

ANDREW J. MILLER JR. (left), promoted to Vice Pres. for Industrial Relations in The Mead Corp., Chillicothe, O., headquarters, and HUGH A. BLACK (right), who moved up to Director of Industrial Relations for all company units. Both are new titles. Mr. Miller had actually been directing industrial relations, but with title of Assistant (Vice President Ford Shephard being nominally director, although the latter's duties are much broader). Born in Arkansas, raised in Memphis and graduate of U. of Tenn., Mr. Miller was Secy-Mgr. of the Fox River (Wis.) Pulp and Paper Assn., when he joined Mead in 1944. Mr. Black, born in Ohio, graduated from Miami U., m.a. from Fletcher School, Cambridge, Mass., was Lieut. Commander in charge of the Navy Special Discharge Section for Personnel in Washington, D. C., when he joined Mead in 1946 as Labor Relations Adviser.

MORGAN BECOMES VICE PRESIDENT; WENTWORTH BROWN GOES WEST

HOWARD W. MORGAN (left), Manager of Weyerhaeuser Timber Co.'s Pulp Division since 1946, has been elected Vice President of the company. His headquarters are in Tacoma, Wash. He is 51, was born in Milford, Pa., graduated from Syracuse in 1926 and received his master's there in 1928. He taught there and at the Institute of Paper Chemistry and was with Oxford Paper and Munising Paper, where he was Vice Pres. and Mgr., before joining Weyerhaeuser.

WENTWORTH BROWN (right), of Berlin, N.H., has been appointed Vice President and General Manager of Columbia Cellulose Co. and Celgar Development Co. and Vice President of Canadian Chemical & Cellulose Co., the Canadian subsidiaries of Celanese Corp. of America, and will make his headquarters in Vancouver, B.C., in October. Mr. Brown at present is a Vice President of Brown Co. of Berlin, and Vice President of Brown Corp., its Canadian subsidiary at La Tuque, Que., where he lived more than ten years while the company pioneered in bleached kraft and cellulose fibers.

HERB GARDNER—TEX COLLINS

HERBERT FRANCIS GARDNER (left), formerly head of Paper and Adhesive Laboratory of Pabst Brewing Co., and graduate of Brooklyn Polytechnic Institute '23, is new Midwest sales and technical representative for Morningstar, Nicol, Inc., suppliers of starch, dextrine and natural gum products, as announced by Pres. Geo. J. Muller. He has worked on enzyme conversions of starch for paper mill operations for some years. Was with Stein Hall & Co. after college. Home at 550 Pleasant View St., Wauwatosa, Wis. Offices in Chicago, 1770 Canalport Ave.

THERON T. (TEX) COLLINS JR. (right), who has joined National Container Corp. as Tech. Director, according to Vice Pres. Wm. Webster. Mr. Collins was in industry research for years, including serving with Thilmany Pulp & Paper Co. His headquarters are at Jacksonville, Fla.

CROWN ZELLERBACH MANAGERS

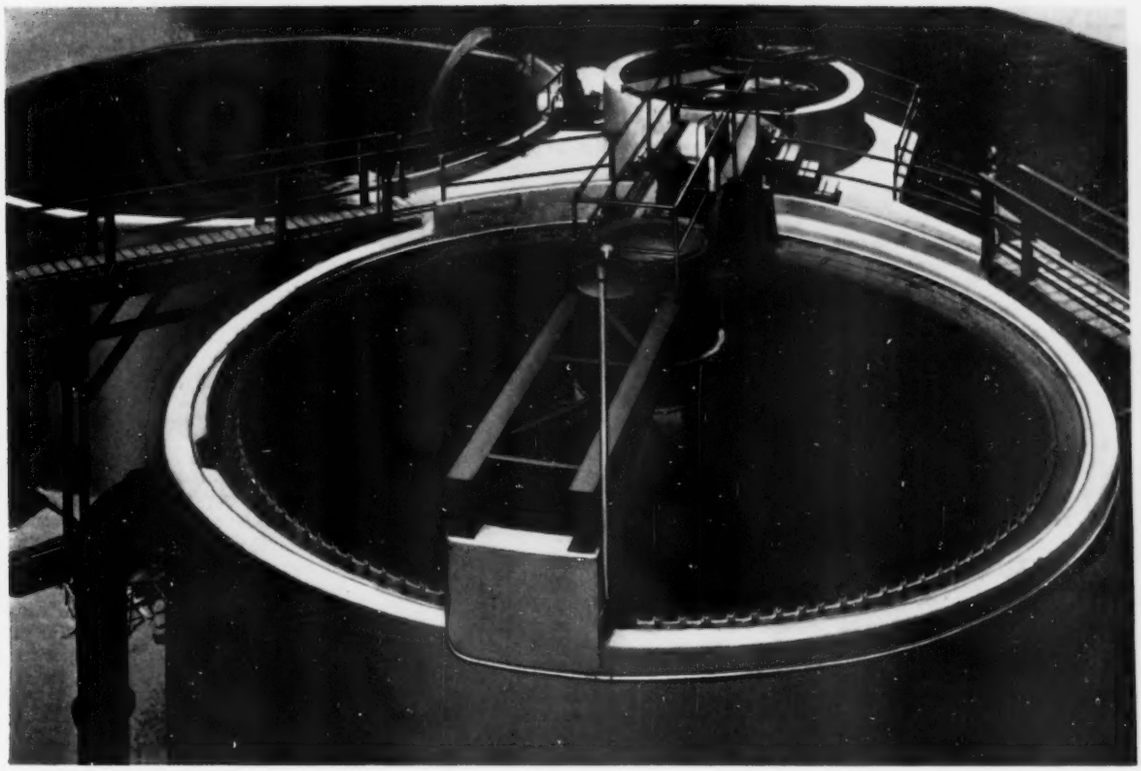
HAROLD F. CARPENTER (left), graduate of Alfred University in New York in 1929, who joined Crown Zellerbach as paper tester in its Carthage, N.Y., mill, has become Manager of its Port Angeles, Wash., mill—one of first eastern employes to rise to that rank in the company. He had been Industrial and Community Relations Director at Camas Mill past 9 months, and before that was Asst. Res. Mgr. at Port Angeles. He has also been an Asst. P.A. and Asst. Tech. Supvr.

RAY J. SCHADT (right), Manager since 1950 at Port Angeles, has moved to Portland, Ore., headquarters of Crown Z, preparatory to the absorption of St. Helens Pulp & Paper Co., St. Helens, Ore., in Crown Z by stock exchange. A few officials and stockholders of St. Helens fought the acquisition in court and have lost their case. It is expected there will be changes in executive personnel in the kraft pulp and paper mill. Crown Z owns considerable timber in the mill vicinity. Mr. Schadt, 21 years with Crown Z, was also a former manager at Carthage.

MANAGERIAL APPOINTMENTS

GEORGE S. DOUGLAS (left) has been named Division Manager in charge of all manufacturing operations of The Mead Corp.'s Michigan Division at Escanaba, Mich. E. G. Bennett continues as President of the two companies in the division—Escanaba Paper and Upper Mich. Power & Light. Mr. Douglas, born in Tacoma, Wash., graduated from the U. of Washington in 1930 and was with Crown Zellerbach six years at Port Angeles, Wash. He joined Mead as an engineer, and was Manager of its Leominster Div., and lately Asst. to the Executive Vice Pres. in Chillicothe, O.

GEORGE E. SCOFIELD (right), has been named Assistant Res. Mgr. of the Jesup, Ga., Division of Rayonier, according to Vice President Wm. E. Breitenbach. Mr. Scofield will continue as Asst. Res. Mgr. at the Fernandina, Fla., Division, until the new mill goes into production next year. He is a graduate of the University of Washington and was with Rayonier at Grays Harbor, Wash., before going to Florida as Chief Chemist eight years ago.



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CHLORINE DIOXIDE GENERATION
BY REDUCING SODIUM CHLORATE WITH SULFUR DIOXIDE

By Joseph B. Heitman

Chemical Engineer, Pennsylvania Salt Mfg. Co. of Washington

IN THE PAST SEVERAL years interest has been growing in the United States in the use of chlorine dioxide for the bleaching of pulp. A survey of the literature in this field, coupled with visual observations of German chlorine dioxide generating equipment, led to the belief that a generator of the type developed by I. G. Farben at Griesheim, Germany, offered significant advantages both in simplicity of construction and type of reaction utilized. Accordingly, a pilot plant generator was built and operated for the purpose of obtaining data that might interest and serve the pulp and paper industry.

JOSEPH B. HEITMAN, who gave this paper at Gearhart, Ore., Meeting. Born in Tacoma, Wash., he graduated from U. of Washington with B.S. in 1949, M.S. in 1950.

The Griesheim Generator

During the early part of World War II I. G. Farben constructed a pilot plant and semi works plant for the manufacture of chlorine dioxide at Griesheim. These plants generated chlorine dioxide with the subsequent conversion of this material to sodium chlorite. The production capacities of the units were respectively 4 and 15 tons per month of 80% sodium chlorite. The method of generation of chlorine dioxide used at Griesheim is of interest since it utilized relatively simple apparatus and a very concentrated solution mixture of sodium chlorate and sulfuric acid.

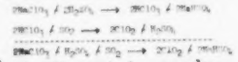
The reducing agent for this process was sulfur dioxide which was found to be highly effective because of its ability to instantaneously react with the chlorate and acid mixture.

The chlorine dioxide produced was of high relative purity containing a minimum of only one part of chlorine to 20 parts of chlorine dioxide. The generation apparatus was of a batch continuous type which required control only of the sulfur dioxide input in order to proportionately vary the chlorine dioxide output. In practice, the sulfur dioxide was diluted with air for the purpose of maintaining the chlorine dioxide concentration at less than 10% of the product gas volume. Care must always be taken that chlorine dioxide be diluted with air or other inert gases. The recommended maximum partial pressure is said to be 0.1 atmospheres. It was reported that the partial pressure of the chlorine dioxide in the Griesheim generator sometimes reached a maximum of 0.4 atmospheres. However, no explosions were reported to have occurred at this concentration. The results obtained from the operation of the pilot plant and semi works plant units at Griesheim were utilized for the design of a plant to have a capacity of 100 tons of 80% sodium chlorite per month. Completed units and drawings were observed by a technical group of the Technical Industrial Intelligence Branch of the U. S. Department of Commerce in 1946.

The Experimental Generator

In 1948 an experimental generator of the Griesheim type was constructed and operated for the purpose of obtaining technical and operational information. This generator consisted of three vertical reactors manufactured of 4 foot lengths of 4 inch pipe. The design capacity of the generator was 0.5 to 1.0 pound of chlorine dioxide per hour.

In essence, the generator consists of three reactor vessels to which are added 35% to 42% sulfuric acid and an excess of sodium chlorate over that which would be soluble in the acid solution. Sulfur dioxide diluted with air is bubbled through this mixture, resulting in the formation of chlorine dioxide by the reduction of the chloric acid with the subsequent formation of sodium acid sulfate.



The first attempt to produce chlorine dioxide using a single reactor resulted in a product which was contaminated with about 20% by weight of chlorine based on the chlorine dioxide present. This contamination was thought to be the result of the reduction of chlorine dioxide by unreacted sulfur dioxide in the gas phase of the reactor and in the absorber liquor.

The results were similar to those reportedly obtained in Germany. In German practice, however, the product gases from the first reactor were conducted through a second reactor which would result in the decrease of the chlorine content to about 8%. When the product gases from the second reactor were passed through a third reactor, the chlorine content was reduced to 5% or less. The results obtained from the experimental generator closely followed the German results in that it was found that the use of three reactors in series would give a high quality chlorine dioxide.

The chlorate charge in the first reactor would become depleted as the reaction proceeded, with the result that the chlorate in the first reactor would eventually be completely consumed. When this occurred the reaction would automatically transfer to the second reactor.

Following the transfer of the reaction to the second reactor, the first reactor was drained, flushed out, and recharged. Then, through the manifolding system, it would be returned to the flow stream as the third reactor in the new sequence. During this out of service period of about two hours. no appreciable increase in the chlorine content of the product gas occurred.

In practice, it was found that the experimental reactors would hold sufficient chlorate and acid to allow operation for eight to ten hours before it was necessary to recharge a reactor. During this time, the flow of chlorine dioxide was dependent only upon the rate of addition of sulfur dioxide properly diluted with air. It will be noted that the output of chlorine dioxide may be controlled by the sulfur dioxide input alone. At Griesheim a fourth reactor was employed so that it was possible to have a spare reactor in case repairs were required on one of the others.

The reaction of sulfur dioxide with a

GROWING INTEREST IN CHLORINE DIOXIDE USE

Because of the growing wide interest in chlorine dioxide bleaching, for the purpose of attaining higher brightness and cleaner pulps, PULP & PAPER is pleased to be able to present this paper on a new development in that field. The paper attracted keen interest at the Joint Spring Meeting of Coast Superintendents and Coast Tappi members in Gearhart, Ore., in late May.

First mill in North America to install chlorine dioxide bleaching was MacMillan & Bloedel's bleached kraft pulp mill near Nanaimo, B.C., which markets "Harmac" pulp. Next was the new Riegel Carolina bleached kraft mill at Riegelwood, N.C. Observers close to the industry have predicted that any new mills—kraft or sulfite—shooting for quality pulps, will probably have a chlorine dioxide stage in the future. For instance, Potlatch Forests Inc. at Lewiston, Ida., and East Texas Pulp & Paper, Evadale, Tex., are installing chlorine dioxide bleaching.

Recently, knowledge has increased rapidly on how to handle and to apply chlorine dioxide.

As time goes on, it may be that cleaning of wood will not need to be so meticulous, as wood specks are cleaned up with ClO_2, and thereby the equivalent of many cords and many acres of wood may be saved every year. It will mean many dollars saved, too, by the pulp industry. Experimental work has indicated this future prospect.

The use of ClO_2 commercially has been in vogue in Swedish mills for several years.

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mixture of sulfuric acid and sodium chlorate is exothermic. Considerable heat is generated in the first reactor with a much smaller amount of heat being evolved in the second reactor. It is necessary, therefore, to employ cooling coils to remove this heat. The first reactor was operated at a maximum temperature of about 110° F with the average temperature being 105° to 110° F. The second reactor was maintained at a temperature of slightly more than 80° F. A temperature of 122° F has been reported to be in the danger region for the stability of chlorine dioxide and excessive temperatures might result in an explosion[5].

The temperatures of the first two reactors in the series should be maintained in excess of 80°F since sodium-acid-sulfate is formed as a result of the reaction. This material forms large glassy crystals which plug the reactor at lower temperatures. Therefore, care was taken that the proper temperatures were maintained. Either hot or cold water could be circulated through the cooling coil in each reactor. It was found advantageous on initial start-up to heat the first reactor to about 80°F and then to cool as soon as the sulfur dioxide was added and the reaction initiated. Heating and cooling of the experimental generator was controlled manually but automatic instrumentation would be desirable on a commercial unit.

It was found that the depletion of the chlorate charge in the first reactor could be recognized by the drop in temperature which resulted from the cessation of the reaction. If the sulfur dioxide were allowed to pass through the first reactor for a period of about one-half hour after it had been apparent that the reaction was slowing down, almost complete utilization of the sodium chlorate would result. In this case, up to 99.2% of the chlorate was found to have reacted. It was the German practice to use a sight glass in the discharge from the reactors for the purpose of determining completion of the reaction.

Materials of Construction

The materials of construction for a chlorine dioxide generator of this type are limited to a few materials. Although chlorine dioxide was reported to be not particularly corrosive to type 316 stainless steel and some of the other stainless steels, it was found that the mixture of reactants used with this generator was highly corrosive to metals and many other construction materials. It was determined, through substitutions of various portions of the generator, that the materials of construction for the portions of the generator in contact with the reactor charge and the evolved gases were limited to unplasticized Saran, unplasticized polyvinyl chloride, ceramics, or glass. Teflon, Kel-F, and Karbate may be satisfactory but were not tried.

Rubber undergoes a slow deterioration under the influence of chlorine dioxide and sulfur dioxide mixtures. The experimental generator was lined with rubber and although it was satisfactory during the period of experimentation it was found to be somewhat eroded. It is planned to reline the reactors with unplasticized Saran or unplasticized polyvinyl chloride after complete deterioration of the rubber lining takes place. Hard rubber piping embrittled and lost its cohesive structure. Unplasticized Saran piping, on the other hand, showed no change in structure or evidence of wear.

ABSTRACT

A description of a pilot plant chlorine dioxide generator utilizing sulfur dioxide as a reducing agent for sodium chlorate in strong sulfuric acid is presented. This description includes design features, materials of construction, and operating characteristics. An attempt is made to explain the anomaly of the material balance efficiency being greater than the theoretical amount indicated by the chlorine dioxide-chlorine ratio. This explanation summarizes reasons for the belief that some chlorine monoxide is produced as the result of a side reaction.

Acknowledgment is made by the author to Errol H. Karr who gathered the information on chlorine dioxide in Germany and Harry S. Fisher who designed the experimental equipment described herein.

Great difficulty was encountered in the choice of valves. A number of valves, composed of metals, plastics, and combinations thereof, were tried but they were found to be unsatisfactory owing to corrosion difficulties. Diaphragm type valves, having plastic diaphragms, were found to be unsatisfactory because the reaction mixture leached out the plasticizer from the diaphragms with the result that they became corrugated and the valve would not close tightly.

The aforementioned difficulties with valves were solved through the use of Y-type globe valves fabricated entirely from unplasticized polyvinyl chloride. It was necessary to obtain these valves from England. It is understood that valves of this type are now manufactured in the United States. The plastic valves were found to be entirely suitable at the temperatures and pressures associated with the generator.

As a result of a number of experimental runs during which various materials of construction were tested, the generator was finally fabricated of steel reactors lined with Goodrich "Superflexite" rubber. Saran piping, polyvinyl chloride valves, and glass cooling coils and thermowells were also used. The German generators were made of the same materials with the exception that the reactors were lined with unplasticized polyvinyl chloride and the cooling coils were made of Heschotherm (silicon carbide).

The sulfur dioxide and air systems consisted of steel piping and valves. The chlorine dioxide was absorbed in a 10 foot length of 2 inch glass pipe filled with ½ inch Raschig rings. Dispersion of the sulfur dioxide in the bottom of the reactors was accomplished by means of Saran sparger tubes. The German generators employed a small bed of Raschig rings.

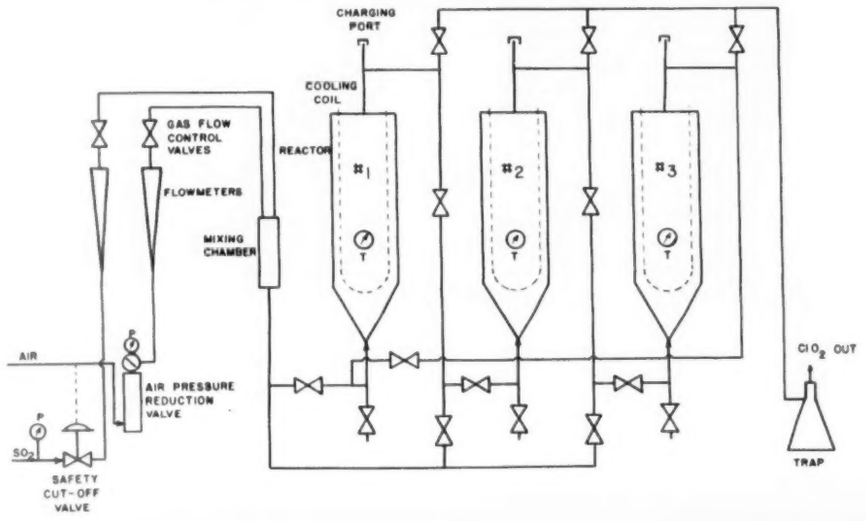
Critical Design Features

The experimental and German type generators were found to have no particularly critical dimensions other than the diameter of the reactors and the cooling capacity. The horizontal cross sectional area of the reactors should be sufficient to prevent "flooding." This area was found to be one square foot of cross section for each 10 cubic feet of air flow per minute. One square foot of cross section should permit production of a maximum of about ten pounds of chlorine dioxide per hour. Therefore, a generator of a capacity of one ton of chlorine dioxide per day should have reactors at least 3.25 feet in diameter. The depth of the solutions in the reactors should be about three to five feet with the greater depth being preferable because it allows more gas contact time. The greater depth also permits a longer operating time before the reactor must be recharged. The production rate of the generator is directly proportional to the sulfur dioxide feed.

Sufficient cooling surface must be provided to remove the heat generated by the reaction. The heat of reaction amounts to about 640 Btu per pound of chlorine dioxide produced. However, this value may vary considerably depending on the initial concentrations of the reactants. It is expected that in moderately sized units, internal cooling coils and a cooling jacket will be satisfactory for removal of heat. For very large units, it might be more suitable to circulate the reactor charge through an external heat exchanger.

Safety heads with frangible diaphragms should be provided to release the pressure in case of an explosion. A safety valve located at the trap (see flow diagram) should also be used to vent off any excess pressure caused by a sudden increase in gas pressure. Generators of this type usually run at about 1.5 atmospheres abso-

FLOW SHEET OF THE EXPERIMENTAL CHLORINE DIOXIDE GENERATOR
(Note number of valves, which are necessary to rotate the reactors in the flow stream).



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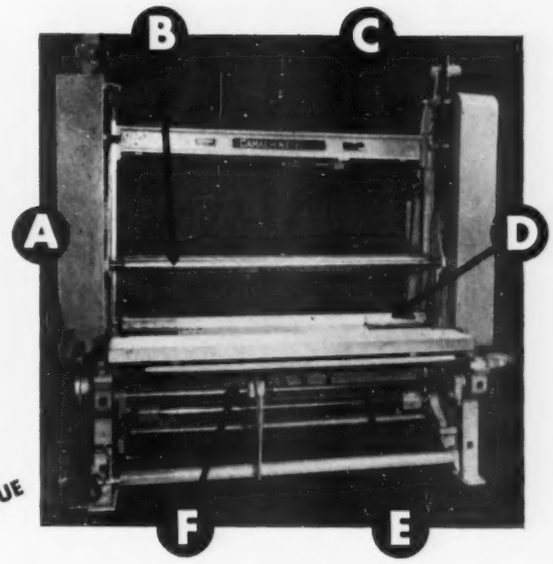

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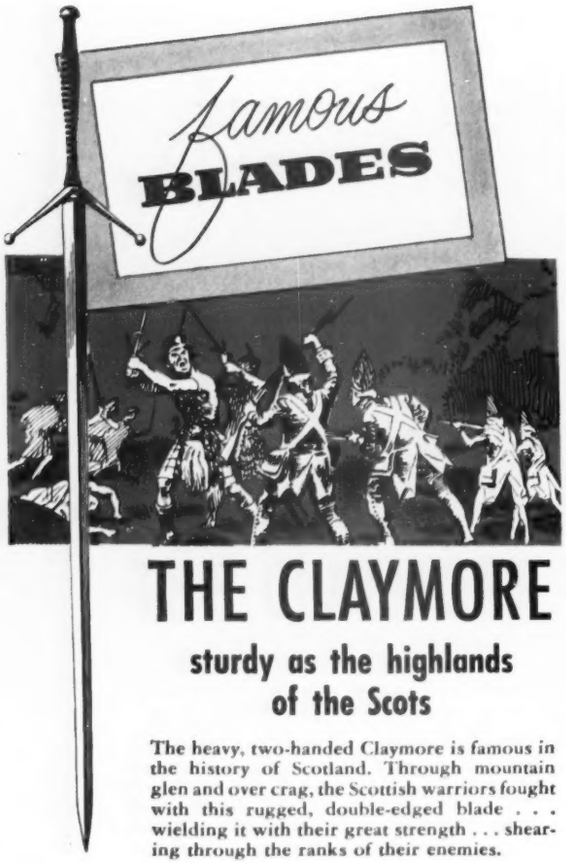

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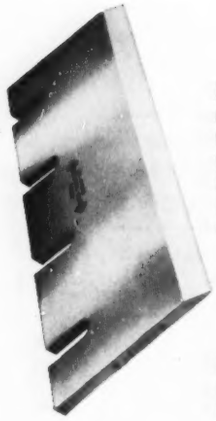

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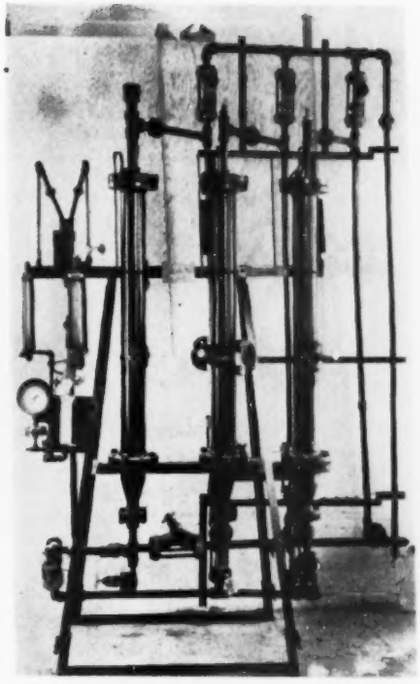


THIS IS PHOTO of the portable chlorine dioxide generator developed by Penn Salt. It is simple in construction and operation. It generates ClO_2 by reduction of $NaClO_3$ with SO_2.

lute pressure. The slight pressure over atmospheric pressure is required to overcome the static head of the solutions.

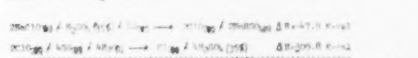
Raw Material Requirements

The experimental generator was usually charged with 3,500 grams of sodium chlorate and 5 liters of 35% sulfuric acid. It was the German practice to use 42% sulfuric acid in equal volume. It was found, however, that satisfactory results could be produced using 35% acid. The maximum raw material requirements of the experimental and German generators are shown as follows:

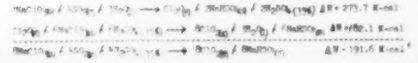
Per Ton of Chlorine Dioxide

	German	*Experimental*
Sodium chlorate	1.82	1.77
Sulfuric acid	1.45	1.1
Sulfur dioxide	0.82	0.71
Process water	2.0	2.05

It will be noted that the consumption of sulfur dioxide is about 50% greater than is theoretically required for the production of chlorine dioxide. This results from certain side reactions which take place. It is stated in the literature, and also by the Germans, that chlorine dioxide is produced in the first reactor and is subsequently reduced by the unreacted sulfur dioxide to chlorine. This reaction would require 5 moles of sulfur dioxide to produce one mole of chlorine (Cl_2). If it is assumed that the generator is producing one part of chlorine per 20 parts of chlorine dioxide, about 50% excess sulfur dioxide will be required. Undoubtedly all of the sulfur dioxide fed into the generator is reacted, since neither sulfur dioxide nor sulfates appear in the absorber liquor.



It is the writer's belief, however, that the aforementioned theory for the reaction in the generator is not entirely correct. There is a possibility that some chlorine monoxide is produced in the first reactor and is subsequently oxidized to chlorine dioxide in the second reactor.



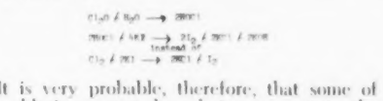
This belief is based upon four factors.

1. Practically all of the heat of reaction was found to occur in the first reactor. If as much chlorine dioxide were being produced in the second reactor as is indicated by the chlorine to chlorine dioxide ratio of the product an appreciable amount of heat would be evolved. The production of chlorine monoxide from the chlorate is exothermic while the oxidation of chlorine monoxide to chlorine dioxide is endothermic as shown by the above equations. This above-mentioned side reaction would, therefore, agree with the qualitative heat balance observed during the runs.

2. The generator was operated using chlorine in place of sulfur dioxide with no appreciable amount of chlorine dioxide being produced. This would indicate that, should chlorine have been produced in the first reactor, it would not readily oxidize to chlorine dioxide in the second and third reactors.

3. Material balances with respect to the generator showed that generally 93% of the chlorate was converted to chlorine dioxide. Based on the one part of chlorine per 20 parts of chlorine dioxide found in the absorber liquor and the almost complete reaction of sodium chlorate in the reactor, it would be possible to get a maximum sodium chlorate conversion to chlorine dioxide of only 90%.

4. The analytical procedure used for chlorine in these experiments involved the oxidation of potassium iodide. Any chlorine monoxide which might have been present would have hydrolized to hypochlorous acid which would have appeared in the analysis as twice the amount of chlorine that was actually present in the chlorine monoxide.



It is very probable, therefore, that some of the chlorine reported as being present in the product was instead chlorine monoxide. The elimination of this analytical error would raise the theoretical sodium chlorate efficiency from about 90% to 93% based on the residual chlorate left in the generator and the chlorine to chlorine dioxide ratio.

Prior Art

Since the process described in this paper was developed in Germany during World War II, no patents were obtained in the United States by I. G. Farben. It is believed that prior art relative to this process goes back to the Koln Rottweil Patent of 1923[7] and the Becker patent of 1933[1]. These patents refer to the use of chlorates in the presence of strong acid and a reducing agent for the generation of chlorine dioxide.

Cunningham patented the use of sulfur dioxide as a reducing agent in 1937[3]. He did not, however, make mention of the use of strongly acidic solutions of chlorates. Sulfur dioxide had been described as a reducing agent for chlorates in analytical procedures as far back as 1900[2] and, in the form of bisulfites, had been used for the experimental production of chlorine dioxide in 1929[4].

The Hoist process, while somewhat similar to the I. G. Farben process in that it makes use of strong sulfuric acid and chlorates in an aqueous solution, utilizes reactors in parallel and differs from the I. G. Farben process in several respects[6].

Conclusion

It is believed that the use of a generator of this type for the commercial production of chlorine dioxide would offer advantages over other processes because of the relatively low acid requirement, improved chlorate efficiency, and the simplicity and ease of control of the generation equipment. There is also the advantage that the sulfur dioxide, used as a reducing agent, either reacts instantaneously or remains in the gas phase and does not build up an appreciable concentration in the reactors. Therefore, there is no danger that the build-up of the reducing agent in the reactor solutions will result in an explosion.

While it was customary in Germany, and also during the tests of the pilot plant generator, to add solid sodium chlorate and dilute acid to the reactor, a more advantageous operation on a commercial scale might result from the addition of strong acid to a concentrated chlorate solution in the reactor. This would make possible the storage and handling of sodium chlorate as a solution which could be easily pumped to the reactors. The sodium chlorate could be dissolved from tank cars by warm water and held in a storage tank in solution until required.

(1) Becher, Willy, German Patent 517,755 (Feb. 11, 1931); (2) Blattner, N., and J. Brasseur, Chem. Z. *24*, 793 (1900); (3) Cunningham, George L., U. S. Patent 2,089,913 (Aug. 10, 1937); (4) Ferran, Jose U., Quim. e ind. *6*, 219-21 (1929); (5) Gardiner, Wm. C., and E. H. Karr, Office Tech. Services Report, PB 33,218 (1946); (6) Holst, Gustaf, Paper Trade J. *128*, No. 1, 21-6 (1949); (7) Koln-Rottweil A. G., German Patent 378,289 (July 9, 1923); (8) Lange, Norbert A. *Handbook of Chemistry*, 6th ed., Sandusky, Handboko Publishers, Inc., 1946.

A MEAD "BLOWS" FIRST DIGESTER

MISS MARIANNA MEAD, youngest daughter of GEORGE H. MEAD, Honorary Chairman of The Mead Corp., opens valve which "blows" experimental digester symbolizing opening of new Mead Central Research Laboratory in Chillicothe, O., while RUSSELL H. SAVAGE, Vice Pres. for Research, looks on approvingly. For picture of new $1,000,000 Laboratory see May issue, page 38.

SO. CALIF. PAPERMAKERS ELECT OFFICERS

NEW OFFICERS chosen by Papermakers and Associates of Southern California, Los Angeles, May 21. Left to right: TED MARKOV, Fibreboard Products, left, succeeds Joe T. Cooey, next, Container Corp. of A., as Chairman. Others, l. to r.: ROBERT W. LEWIS, Container Corp., Secretary-Treasurer; OTTO SASS, and LOU LONG, Pioneer-Flintkote, Executive Committee. LLOYD DEAN, Volney Felt, elected Vice Chairman, was not present. Speaker for the evening was T. B. Smock, General Dyestuff.

News and Notes from ▣ ▣ ▣

EQUIPMENT AND SUPPLY COMPANIES

THE ENTERPRISE CO., Columbiana, Ohio, have developed a modern all-steel Log Roller Conveyor. This table conveyor, according to Wm. K. Stamets, Jr., chief engineer, may be made up in series to any desired length thereby giving full flexibility in design and permitting changes in future plant layout. Bulletin 501 outlining standard sizes and general dimensions for these conveyors may be had upon addressing a request to the company.

MINNEAPOLIS-HONEYWELL REGULATOR CO., Industrial Division, has built a new type instrument panel which provides complete control, plus a permanent record on the entire operation of the four stage pressure washing system. Complete process flow of pulp and counter current wash water are shown automatically on panel board. According to news released, systems now in operation have established operation at a rate in excess of 300 tons per day, a four stage system has consistently used less than 200 gpm wash water with a dilution factor of less than 2 lbs. water per lb. of stock, delivering a pulp containing less than 30 lbs. of salt cake per ton.

FAIRBANKS, MORSE & CO., 105 S.E. Taylor St., Portland, Ore., announces the opening of its new building for the Seattle branch, located at 668 Lane St. The new quarters consist of a modern sales office, scale and machinery repair shops, warehouse facilities and an adjoining parking lot.

THE GARLOCK PACKING CO. has designed back-up rings, spirally machined of tetrafluoroethylene (Du Pont's Teflon) to prevent extrusion of "O" rings. For further information contact the company—Dept. 34, Palmyra, N.Y.

LOUIS ALLIS CO. has prepared a new bulletin on its line of Wound Rotor Motors, ½ to 1000 horsepower. Copies of bulletin No. 1300 are available from offices or distributors or by writing Louis Allis Co., Milwaukee 7, Wis.

HYGROTESTER INC., Neuwied, Germany, is seeking contacts with U.S. manufacturers of equipment in the pulp and paper field who are interested in selling their products abroad, according to Paul Lippke, president. Mr. Lippke recently established Hygrotester Inc., in Brooklyn, N.Y., for sale of his special moisture testing and control equipment. He now offers his own organization in Europe for sales and service of U.S. equipment there, with particular emphasis on pH instruments in which he says European industry is interested. Mr. Lippke arrived in May, attended meetings here, including the Superintendent's in Atlanta, Ga., and will return to this country in September. Interested companies should send inquiries to Hygrotester Inc., 101 Henry St., Brooklyn 1, N.Y.

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• 122 East 42nd Street, New York 17, New York
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NEW "V" TYPE SPOUT by D. J. Murray Manufacturing Co., Mausau, Wis., under the trade name "Murco," will fit any make of chipper. Because of its special V shape the spout will hold any size stick or log. The wood moves in a straight line without side movement to retard cutting. By holding wood firmly it will reduce sawdust, improve chip quality and uniformity. Jam-ups are eliminated by specially designed hinged cover operated by a cable to a point convenient to operator, as illustrated here showing spout in closed position.

SANDY HILL IRON & BRASS WORKS, Hudson Falls, N.Y., paid $2,000 to employee Julius J. Colvin for his invention providing for quick replacement of plates in the Packer flat screen manufactured by the company. The mechanism is to be known as the Sandy Quikloc screen vat, and because of its fast unlocking device is expected to increase plate life by removing necessity for walking on the plates while changing. It is said that several of the units are already in operation.

SAMUEL M. LANGSTON CO., Camden, N.J., announce that *MASSON SCOTT & CO., LTD.*, London, England, have just completed manufacture of the first English-built Langston rotary cut-off. Bryant W. Langston, president, and C. D. Nitchie, chief engineer, were on hand to take part in ceremonies celebrating the occasion.

MICROCHEMICAL RESEARCH INSTITUTE, Douglaston, New York, have released a bulletin on de-contamination systems developed by the Institute, one of which is said to be capable of handling as many as six digesters in removing contaminants from steam and wet gases during blowing.

GENERAL ELECTRIC CO., Schenectady, N.Y., has issued a series of bulletins of industry interest which includes: (1) Description of gear-motors, giving electrical types and characteristics, and special mechanical features; (2) illustrations and explanations of uses of Inductrol power packs—packaged equipment for a-c lighting and power service; and (3) description of electronic resistance sensitive relays for motor starters, solenoids, lights, contactors, warning devices, etc. All may be obtained by writing the company.

THE HARTWELL CO., Boston, Mass., has new bulletins available describing uses of non-plasticized polyvinyl chlorides in the industrial field and particularly in applications where resistance to corrosion is important. The material is said to have been successfully used in pipes, pipe fittings and other fabrications requiring resistance to organic and inorganic acids, alkalies, etc.

CHANGES FOR DE LAVAL PACIFIC

DONALD T. BIXBY (left) has just taken up new duties as District Manager for De Laval Turbine Pacific Co. in Seattle, Wash. He was formerly in San Francisco office of De Laval and has had many years experience in production and sales of De Laval line of machinery and equipment. J. ALLAN GREENLAND (right), former Seattle District Manager, is the new District Sales Manager for De Laval Turbine Pacific Co. in San Francisco. Mr. Greenland has been with De Laval several years.

A. O. SMITH CORP., Welding Products Div., Box 584, Milwaukee, Wis., announces the availability of a new, cooler and lighter electrode holder for arc welding. Due to construction and design the holder insures longer production duty and is exceptionally light. It is available in 200, 300 and 500 amp sizes.

HERCULES POWDER CO., Wilmington, Del., announces the development of a new grade of paste-fortified rosin size for the paper industry. The new grade, "Pexol 240," is made from dark rosin. Hercules is now able to offer paper and board mills a complete range of pale and dark-fortified rosin size in both paste and dry form.

H. E. BEANE, vice pres. of sales, *BRISTOL CO.*, Waterbury, Conn., manufacturers of recording and controlling instruments has announced the appointment of *SAM E. GEWIN* as district manager of the St. Louis office. Mr. Gewin's headquarters will be in the Cotton Belt Bldg., St. Louis 2, Mo.

WARREN STEAM PUMP COMPANY, INC., Warren, Mass., manufacturers of a complete line of centrifugal, reciprocating and rotary pumps, announce the appointment of *METERS AND CONTROLS, INC.*, 444 N. LaSalle St., Chicago 10, Ill., as their sales representatives for parts of Illinois, Indiana and Iowa.

IN PACIFIC COAST NEWS

HAROLD S. HILTON (left), recently appointed Sales Mgr. of Northwest Copper Works, Inc., 1303 North River St., Portland 12, Ore. He has had an active role in development of stainless steel fabrication for pulp and paper mills by his company. As a sideline, he recently captured the Portland city golf title. He designed the Fabri-Valve used widely in mills. E. A. (JIM) BERRY (right), appointed Resident Sales-Engineer for Oliver United Filters Inc., and will represent that company in Washington, Oregon and Idaho, temporarily continuing residence at 2926 Madrona Drive, Longview, Wash. Graduate of Univ. of Washington, majoring in forest products, and has had 12 years experience in pulp and paper mill practices.

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LONG-LASTING SPRING-KOTE

1. Can Be Applied to Damp Surfaces
2. Bonds Tightly and Securely
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4. Insulates Vessels, Hot or Cold
5. Protects, Waterproofs, Beautifies

1 2 3 4 5

An effective, new exclusive additive permits application to damp surfaces without detriment to adhesion.

New Spring-Kote contains no flake or crystalline-type fillers that set-up internal stresses when drying. It won't scale, crack, "void," or loosen.

Precise control of raw materials and consistent formulation give new Spring-Kote positive uniformity—batch-after-batch, month-after-month—for utmost reliability.

Retains form and efficiency from −40° F. to 450° F. Contains ground cork when used for insulation. Thicknesses up to ¾" require no mechanical means for support.

Outstanding for metal-protection, for waterproofing and beautifying brick and masonry. Applied by plant maintenance crews or by nearby Authorized Applicators.

Never before has an asphaltic mastic offered users such service and savings. Write today for complete information about new and better Spring-Kote.

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Personals

NORTHEAST NOTES

C. E. SCHAEHRER is now assistant manager of glassine sales for Riegel Paper Corp. where he will be associated with *A. P. MITCHELL*, vice president in charge of sales. Mr. Schaehrer has been with Riegel since 1929.

JOHN J. CALNAN has joined the pulp sales department of Perkins-Goodwin Co. He comes to P-G from Champion-International Co., Lawrence, Mass., with which company he has served since 1936, most recently as assistant to the president.

MERWIN M. WILLIAMS is new sales manager of Gould Paper Co., Lyons Falls, N.Y., and will make his headquarters at New York sales offices.

L. G. GIAZIER, executive vice president of Hollingsworth & Whitney Co., Boston, Mass., has announced promotion of *DENNIS E. COUSINS* to vice president in charge of production for all mills of the company—which include a 420-ton kraft mill at Mobile, Ala.; a 340-ton sulfite mill at Winslow, Me.; and a 100-ton groundwood mill at Madison, Me. Mr. Cousins has been vice president in charge of the Mobile mill and will continue to base there.

EDWARD MCSWEENEY, vice president, Perkins-Goodwin Co., was a guest speaker at the annual meeting of the Eastern Seaboard Conference, Norfolk, Va., May 1. His subject was: "The Challenge to Management."

MAX ACKERMAN has been elected treasurer of National Container Corp., New York. He succeeded *HARRY GINSBERG*, now chairman.

HUGO H. HANSON is now chairman of W. C. Hamilton & Sons and *LANE TAYLOR* is president and treasurer.

U.S. MANUFACTURERS interested in sale and service of their products in the European market are being sought by PAUL LIPPKE (left), head of Hygrotester Inc., Neuwied, Germany. Associated with the paper industry in Europe for 20 years, Mr. Lippke was a first-time visitor in the United States in May, and will return again in September.

IRVING H. PETERS (right), has been named Manager of Field Service Engineering for F. C. Huyck & Sons, Rensselaer, N.Y., according to Frederic A. Soderberg, Vice President. Mr. Peters graduated from N. Y. State College of Forestry in 1940, completing the course in pulp and paper. He was with Flambeau Paper Mills and also was on the staff at the N.Y. school before joining Huyck in 1945.

ARNO W. NICKERSON, for more than 20 years associated with the pulp and paper industry and head of his own consulting firm since 1936, died May 28 at the age of 61 at his home in White Plains, N.Y. Mr. Nickerson graduated from the University of Maine in 1916; served in World War I with the chemical warfare service; and was with Robert Gair Co. in the early 1930's before establishing his own firm.

RUSSELL H. BENTZ, vice president in charge of manufacturing, P. H. Glatfelter Co., Spring Grove, Pa., died of a heart attack May 13, while on a vacation in Sturbridge, Mass. He joined Glatfelter Co. in 1935 as an engineer and held his recent post the past two years. He graduated from Lehigh.

HENRY T. McKNIGHT of Washington, D.C., has been elected a director of Weyerhaeuser Timber Co.

MIDWEST NOTES

FRED BENTZEN, familiar to many visitors at Kimberly-Clark's main office in Neenah, Wis., as receptionist there for five years, has retired and *GEORGE KRONSCHNABEL* took over his desk. K-C Purchasing Dept. gave Fred a fancy barometer and other main office employes contributed to a purse. He was 34 years with K-C, for 25 years as superintendent of the main laboratory, later as supervisor of training and safety.

CARLETON BLUNT, of Chicago, has been elected a new director of Weyerhaeuser Timber Co.

WILLIAM E. WAYMIRE, Westinghouse representative in Appleton, Wis., for 19 years, has become sales supervisor in Milwaukee and *GEORGE H. PATTERSON*, of Chicago, was named to succeed him in Appleton.

MAYNARD CONKLIN has been named assistant treasurer of Champion Paper & Fibre, Hamilton, O. He attended Ohio State. He was a tax consultant for Champion in recent years.

D. C. EVEREST, chairman of Marathon Corp., received an honorary doctorate degree at the U. of Wisconsin centennial commencement.

JOHN C. WOLLWAGE, of Kimberly-Clark, Neenah, Wis., was elected chairman of the Appleton District of the Boy Scouts.

MELVIN E. BARTHEN has resigned as administrative vice president and director of Ohio Boxboard Co., Rittman, O. He started with the company in 1935 and lives in Akron.

COLA PARKER, president of Kimberly-Clark, was elected a director of Myasthenia Gravis Foundation to support research in the cause of that disease.

ROBERT J. PFOTENHAUER has been named credit manager and office manager at Hoberg Paper Mills, Green Bay, Wis. He graduated from Marquette.

ANDREW BARNICKE, of Crystal Tissue Co., Middletown, O., has been promoted to tour foreman. He came there as backtender in 1927.

NATIONAL STARCH DIRECTORS

DONALD C. PASCAL (left), Vice Pres. in charge of Sales, and HERBERT C. PIEL (right), Vice Pres. in charge of Indianapolis plant, have been elected to Board of Directors of National Starch Products Inc., according to Pres. Frank Greenwall. Mr. Pascal, who started as lab assistant in 1929, managed Philadelphia division, became a V. P. in 1948 and head of sales in 1951. Mr. Piel was with the company and its Indianapolis predecessor, Piel Bros. Starch Co., for 45 years.

SOUTHERN NOTES

W. C. GOULDMAN, vice president, secretary and manager of sales of The Chesapeake Corp. of Virginia, West Point, Va., died May 15 at age of 65. He was with the company and predecessor firm since 1916.

A. SCHARWACHTER of Arizona Chemical Co., New York, has been re-elected president of the Tall Oil Association and *ARTCHER E. GRIFFIN*, sales manager of Chemical Div., Camp Mfg. Co., Franklin, Va., was elected vice president. Crossett Chemical Co., Crossett, Ark., was added as a member.

JOSEPH B. TALBIRD has been named assistant comptroller of Rayonier Inc., coordinating the Southeast Timber Division and the mill divisions at Fernandina, Fla., and Jesup, Ga. He is a native of Macon, Ga., and was with Seaboard Railroad before joining Rayonier in 1937. He was recently office manager of Fernandina.

FRED BUCHANAN has been named manager of the National Gypsum Co., plant at Pryor, Okla.

PACIFIC COAST NOTES

EDWIN J. McGILL, superintendent at Rayonier's Shelton, Wash., mill and his wife, Betty, were giving their daughter Sheila in marriage on June 27 to Jerry Henry, of Mt. Vernon, Wash., just back from Korean war service as a sergeant, and engineering student at University of Washington. Sheila is 21 years old, graduated from Washington in 1952.

ALVIN J. BOGAN, assistant plant engineer for many years at the Port Townsend, Wash., mill of Crown Zellerbach Corp., died suddenly there on May 10. His widow and a son, Harold, in Seattle, are among family survivors.

SIDNEY M. COLLIER is sales manager for Metal Sales Co, Inc., of Kirkland,

Continued on page 82

ALLIS-CHALMERS LIME SLUDGE KILNS *Preferred* by the Sulphate paper industry

45 Allis-Chalmers Lime Sludge Kilns are Now in Operation in United States and Canada

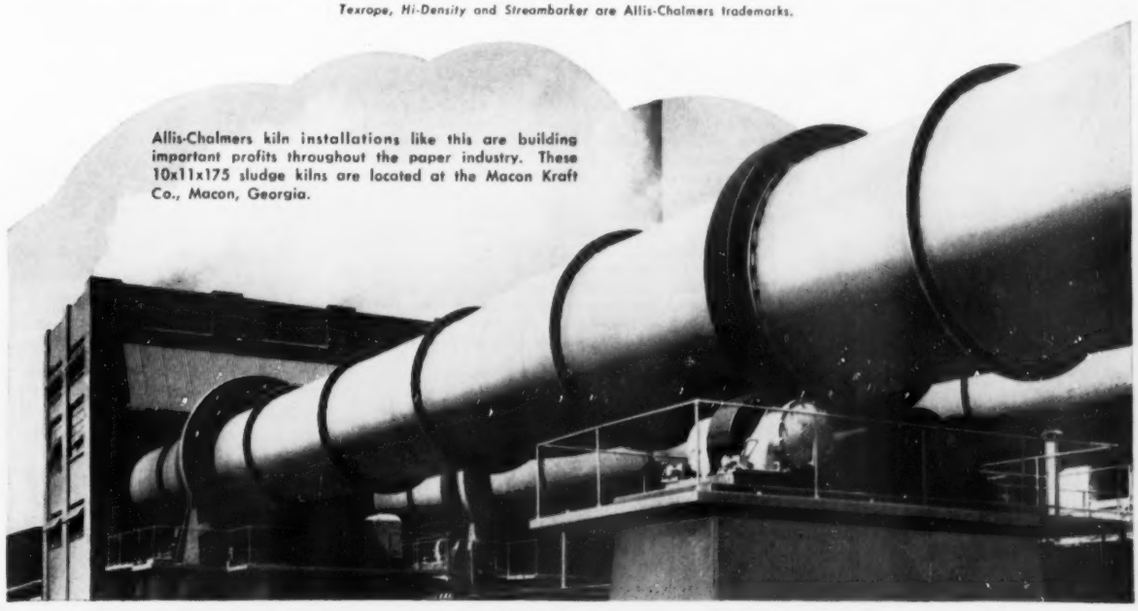
This marked preference is the result of many engineering and construction features which make the Allis-Chalmers rotary kiln the hardest working, most profitable equipment ever developed for lime sludge recovery.

In the A-C kiln, a carefully calculated diameter-length ratio minimizes costly "ringing" and resultant operational troubles and shutdowns. A new 20 degree involute spur gear distributes driving force evenly. True circle shell construction insures a tight refractory lining fit and long refractory life. Floating type riding rings provide adequate support and proper weight distribution.

Big Fuel Saving . . . Increased Capacity

Fuel savings as high as 30% and a 10% capacity increase are made possible by the Allis-Chalmers patented heat-recuperating system, a chain-hanger-spiral arrangement in the feed end of the kiln. This system effectively extracts heat from gases . . . gives low exhaust temperatures . . . increases heat transfer surface. Write Allis-Chalmers, Milwaukee 1, Wisconsin, for Bulletin 07R7010. A-4003

Texrope, Hi-Density and *Streambarker* are Allis-Chalmers trademarks.

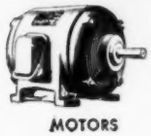


Allis-Chalmers kiln installations like this are building important profits throughout the paper industry. These 10x11x175 sludge kilns are located at the Macon Kraft Co., Macon, Georgia.

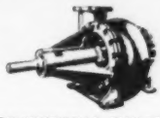
ALLIS-CHALMERS

A-C ALLIS-CHALMERS

Paper Making Equipment



MOTORS



CENTRIFUGAL PUMPS

TEXROPE V-BELT DRIVES

STREAMBARKER

HI-DENSITY FEEDER

VIBRATING SCREENS

Personals

PACIFIC COAST NOTES

Continued from page 80

Wash., which through his activities is entering the Pacific Northwest pulp and paper field. Mr. Collier was born in Tacoma, Wash., graduated from the University of Washington, and recently was superintendent of the Harmac Pulp mill of MacMillan & Bloedel, Ltd., near Nanaimo, B.C. His wife, Helen, also is from Tacoma, and they have three children. Mr. Collier was with the Cascade mill in Tacoma, the Soundview Pulp Co. in Everett and was former assistant supt. at Puget Pulp, Bellingham, Wash. He recently made a four months tour of eastern paper mills.

THOMAS BANNAN, president of Pacific-Western Gear Works, and president of the board of regents of Seattle University, was recently awarded an honorary degree of doctor of laws from the Seattle institution.

EDWARD D. ROLLINS has been appointed western manager of General American Transportation Corp.'s new plate and welding division sales office in San Francisco. It will serve West Coast and Rocky Mt. customers from Gatx's new steel plant in Utah Mr. Rollins was with Gatx for eight years in Chicago. He served as a colonel in Army engineers in WW II and as a Navy officer in WW I.

BLAKELY HONEYMAN of Morden Machines Co, Portland, Ore., had his personal card printed in Japanese for his recent extensive trip in that country with his wife, Mary.

BEN NATWICK of Appleton Wire, Camas, Wash., and his wife, Ope, and *FRED HOFFMAN*, president of Hydraulic Supply Co., Seattle, and his wife, Peggy, were among Pacific Coasters who spent recent vacations in Hawaii.

KEN WILEY, Bauer Bros., Eugene, Ore., was the first person to register at the recent Gearhart, Ore., convention.

HUGH OSBORNE, General Dye, brought his bride, Carol, to her first convention at Gearhart. They were married last August. They live in Portland, Ore.

BOB ROGERS, of Van Waters & Rogers, Seattle, attended the dedication ceremonies of the new Scott mill in Everett as a guest of the company and he and his wife, Gloria, later were at the Gearhart meeting.

HAROLD HILTON, one of Portland, Ore.'s best golfers, was recently promoted to sales manager of Northwest Copper Works, Inc., of that city, stainless steel fabricators.

KEN JONES, representing Ross Engineering in the west, and his wife, Pat, have bought a new home at 9631 Hilltop Road, Bellevue, Wash., across Lake Washington from his Seattle headquarters.

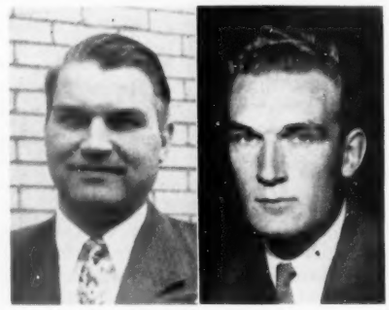
DON OSBORNE's position as training supervisor at the West Linn, Ore., mill is a newly created post and the only other one like it presently in the Crown Z organization is held by Reg Haight at the Camas mill.

BILL DAMON, Coast rep. for Orr Felt, went back to Piqua, O., company headquarters for the annual sales meeting held in conjunction with the Miami Valley Supts. spring meeting there.

JOHN G. ROBINSON, project engineer for Weyerhaeuser's new hardboard plant in Klamath Falls, Ore., will be its superintendent when it starts up this fall.

DEAN O. BOWMAN, who was assistant administrator in charge of policy coordination in NPA, has joined Crown Zellerbach in San Francisco headquarters as secretary of its planning committee. This is a similar post to the type of work he did in NPA. Before that he was with the Dept. of Commerce in Washington.

IN PACIFIC COAST NEWS



HAROLD K. SEEDS (left), who has joined Crown Zellerbach Corp., Portland, Ore., office as Assistant to Barney T. Mullaney, Manager of Specialized Personnel Placement. Mr. Seeds, 29, born in Burley, Idaho, has been a physical ed. teacher and coach in Vancouver, Wash., and has degrees and credits from nine colleges and universities, including Michigan, Oregon, Utah and Idaho schools. He was an Idaho all-state and all-conference basketball center. He will assist in recruiting of college-trained employes. He was a paratrooper in W.W. II.

RICHARD E. LAWTON (right), promoted to Supervisor of Industrial and Community Relations at Crown Z's Camas, Wash., Mill. He graduated from Eastern Wash. College of Education in 1934, taught in Washington schools and joined Crown Z as time clerk in 1937 at Camas. He was Asst. Office Mgr. for 9 years at West Linn, returning to Camas last year as personnel office assistant.

C. DAVIS WEYERHAEUSER of Tacoma, Wash., has been elected a new director of Weyerhaeuser Timber Co.

MALCOLM, son of *MARVIN JONES*, of Battle Creek, Mich., Midwest representative of Lockport Felt Co., is in the purchasing department at the Springfield, Ore., Weyerhaeuser Mill. His father was once a p.a. in the Michigan industry.

ROBERT M. TRUE, Pacific Coast manager of General Dyestuff Corp., will complete his new home he is building in Menlo Park, Calif., in August and move there with his wife and two children from Portland, Ore. His offices will be in San Francisco.

MILTON J. MAGUIRE has been appointed a Pacific Coast representative for A. E. Staley Mfg. Co., Decatur, Ill., with Washington and Oregon territory for their starches. He also represents the Sinclair Co., Holyoke, Mass., in eleven western states for certain products and in Washington and Oregon for their dandy rolls, cylinder wires, etc. The Brandon Sales Co., dryer felts, Greenville, S. C., is another account Mr. Maguire will handle in the west. His home is Portland, Ore.

DR. CHAS. RUPERT MAYNARD, of research department of the Bucksburn mill of the Alex Pirie Ltd., mills in Aberdeenshire, Scotland, is an exchange staffer at the Camas mill of Crown Z.

CANADIAN NOTES

SYDNEY HANSEL, head of Hansel Engineering Co. of Vancouver, B.C., and Seattle, Wash., is making an extended tour of European pulpwood producing countries and is not expected to return to the west coast until September.

CLIFFORD CRISPIN, vice president of MacMillan & Bloedel, Ltd., in charge of pulp division, has returned from a visit to Europe during which he met many of the company's customers and friends.

E. T. POWERS, who has been associated with the chemical division of Celanese Corp. of America since 1945, has been appointed director of the company's development department and will be closely in touch with expansion of the subsidiaries in Canada.

GARFIELD WESTON, chairman of the board, E. B. Eddy Co., Hull, Que., and head of various other Canadian and British corporations, wanted to be sure that he and his family and friends had a good view of the Coronation procession in London; so he bought a lot on Oxford Street, on the parade route. Among his guests will be hundreds of children from Canada and Europe.

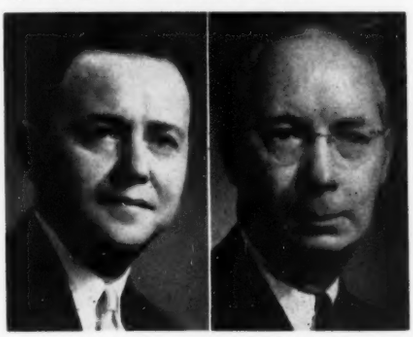
GORDON ROOT, former British Columbia newspaperman who is now director of public relations, Canadian Chemical & Cellulose Co., has moved his office from the Standard Building, Vancouver, to 1242 Peel St., Montreal, where the company's head office is located.

JOHN R. BURKETT, formerly assistant to the manager, Dyestuff Sales, American Cyanamid Co., Calco Chemical Division, has been appointed manager of the division's operations in Canada, effective from July 1. Mr. and Mrs. Burkett and their two daughters, Linda and Mary Pamela, will make their home in Montreal.

WILLIAM BARRETT and *MORRISON*

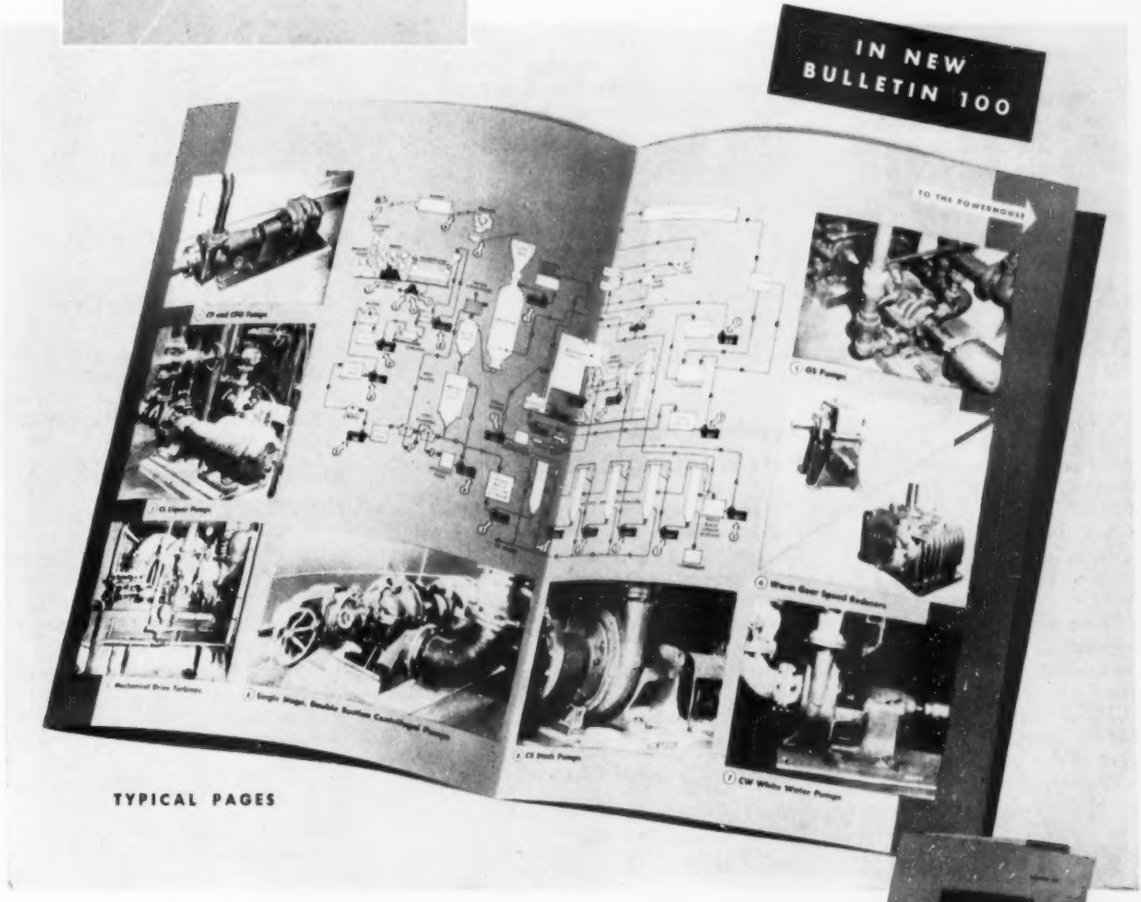
Continued on page 84

JOSEPH P. MONGE (left) and PHILIP A. SARGENT have been appointed Vice Presidents of Canadian International Paper Co. Mr. Monge, graduate of Harvard law school and New York U. graduate school of business administration, joined I.P. in New York in 1937; three years later became Budget Director, in 1944 going to C.I.P. in Montreal, where he became Treasurer in 1947. Mr. Sargent is a graduate of Yale and Maine and entered C.I.P. in 1935 after seven years with I.P. in New York. He was appointed Asst. Gen. Mgr. in 1942. He is Gen. Mgr. of International Fibre Board, Ltd., International Plywoods and Masonite Co. of Canada.



DE LAVAL PRODUCTS

for the paper mill, for the powerhouse



TYPICAL PAGES

This new 6-page bulletin contains quick-reference data on the wide range line of De Laval products for the paper industry. You will find in its pages "capsule" information on such efficient De Laval equipment as:

- **Process, stock, white water liquor and general service pumps**
- **Single and double reduction speed reducers**
- **Mechanical drive turbines**
- **Turbine generators**
- **Boiler feed pumps**
- **IMO fuel oil and transfer pumps**

Flow diagrams show exactly where each type of unit fits into the paper mill *and* the powerhouse.

Write today on your business letterhead for your free copy of new Bulletin 100.

DE LAVAL *Products for the Paper Industry*

DE LAVAL STEAM TURBINE COMPANY

Nottingham Way, Trenton 2, New Jersey

DL186

Personals

CANADIAN NOTES

Continued from page 82

HORTON of the Mead Sales Co., New York, were in British Columbia early in May and visited MacMillan & Bloedel and Alaska Pine & Cellulose Co. mills.

LES TOMLINSON, technical assistant to the pulp production manager, Howard Smith Paper Mills, Montreal, is touring Sweden on a scholarship awarded him by the Canadian Scandinavian Foundation.

C. L. KNIGHT, construction engineer for the Prescott Co., of South Carolina, is now in New Zealand directing the erection of machinery for N.Z. Forest Products Ltd. at Kinleith, New Zealand. The N.Z. company announces appointment of *W. L. WYBER* as a director.

AMIN-UD-DIN, graduate of the University of Punjab, is spending a few months at the Toronto mill of Hinde & Dauch and Trenton, which at present is engaged in manufacture of paperboard from straw, one of the materials in abundant supply in West Pakistan.

N. F. BLAIR has retired as vice president of Price Bros. & Co., Quebec, and his duties are now being performed by *J. E. ATKINSON*.

W. H. SMITH, who was with Price Bros. & Co. before joining Abitibi Power & Paper Co., has retired as executive vice president of the latter organization.

FRANK SULLIVAN has retired as office manager of Abitibi Power & Paper Co.'s mill at Sturgeon Falls, Ont., where he spent the past 30 years in various capacities with different companies.

W. BEVERLY SCOTT has been appointed assistant to the vice president in charge of manufacturing, Consolidated Paper Corp., Montreal, after being division manager at Grand'Mere, Que., *FREDERICK W. BRADSHAW* is now acting division manager at that mill after serving for the past ten years as chief engineer, in which capacity he is succeeded by *EDWARD T. BUCHANAN*.

New Officers Elected By Smith & Winchester

Directors of The Smith & Winchester Mfg. Co., South Windham, Conn., have elected Walter Abbe, Jr., chairman of the board; Eden C. Cook, president and treasurer; Robert B. Abbe, vice president and assistant treasurer; and Richard F. Spellman, secretary.

Walter Abbe, Jr., joined the company in 1917, became president and treasurer in 1923, in which capacity he has served until the present time. Mr. Cook became connected with the company in 1925, was elected a director in 1949, and has served as vice president and assistant treasurer since 1950.

Worcester Tornado Damages Plants

The worst tornado in the history of New England, striking Worcester and adjacent Massachusetts communities shortly after 5 p.m. June 9, struck also at plants and employes of suppliers to the pulp and paper industry.

The rampant twister took off part of the steel roofing of a new $6,000,000 machine tool plant of the Norton Company, according to a report from H. J. Sheehan, Norton vice president. Damage to roof and equipment is estimated close to $1,000,000. No casualties occurred at this plant, but a dozen Norton workers were killed in their homes.

Charles S. Barton, president of Rice Barton, president of Rice Barton Corp., sent out a report to friends and customers, relating that the Rice Barton plant was south of the storm center and not damaged, and no R-B employes were injured, though some of their immediate families were among the casualties.

Southern Paperboard Expands Port Wentworth, Ga., Mill

A major expansion underway at Southern Paperboard Corp., Port Wentworth, Ga., will feature introduction of a high yield process expected substantially to increase the mill's capacity. Pulp mill additions will include one new boiler, a turbine, three digesters and new refining capacity. J. E. Sirrine Co., Greenville, S.C., are engineers, and Daniel Construction Co., general contractors.

St. Helens Deal Closed

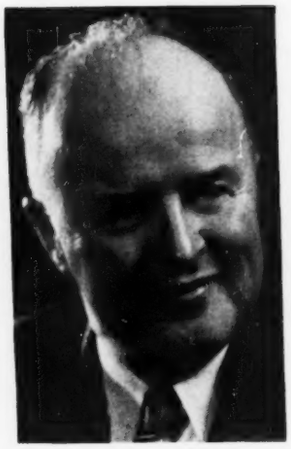
J. D. Zellerbach, president, Crown Zellerbach Corp., said that more than 99% of outstanding shares of St. Helens Pulp & Paper Co. had accepted the offer of exchange for Zellerbach common stock.

Kimberly-Clark Search For Insecticides, Wood Sprays

Said to be first private industry laboratory of its kind in the U.S., Kimberly-Clark Corp. has a two-man lab in operation at Iron Mountain, Mich., for applied research on insect and disease damage to forests and pulpwood. New experiments are being conducted to decide on best insecticides to use to kill grubs at roots of seedlings.

Another lab undertaking is study of balsam fir decay which attacks inside the trunk. Ants follow this dry rot. After being cut and sent to woodyard these trees are a total loss when the condition is discovered. Other research concerns the hypoxylon canker attacking poplar, spruce budworm, locusts and caterpillars.

About 6,500 cords of pulpwood at Boon, Ont., and 1,000 cords at Niagara, Wis., are being sprayed in attempts to control wood borers.



ARTHUR F. MOUL, who has become sole owner and President of Samuel C. Rogers & Co., Buffalo, N.Y. He started as salesman, invented some of grinders it sells pulp and paper field.

Lobdell Grinder to Israel

Lobdell United Co. has shipped a large roll grinder to the new American Israeli Paper Mills, previously reported here as being built in Hadera, Israel, to make kraft bag and printing and writing paper. Lobdell will send one of its own engineers to Hadera, to train Israeli personnel.

Black-Clawson Opens New York Office

The Black-Clawson Co., Hamilton, O., has established headquarters for export sales and domestic service in the Metropolitan New York area, according to President Cliff R. Crawford.

The new office at 250 Park Avenue will function primarily in the interest of integrating world wide representation of Black-Clawson, its divisions; Shartle Bros. Machine, Dilts Machine Works and its British subsidiary sales and manufacturing company in London; B-C International, Ltd., and other associated manufacturing firms in foreign countries.

Frank T. Peterson, newly elected vice president and assistant to the president, will be in charge of the New York office. Mr. Peterson was formerly deputy managing director of B-C International of London, Eng.

Seaboard Airline Issue Timber Resources Bulletin

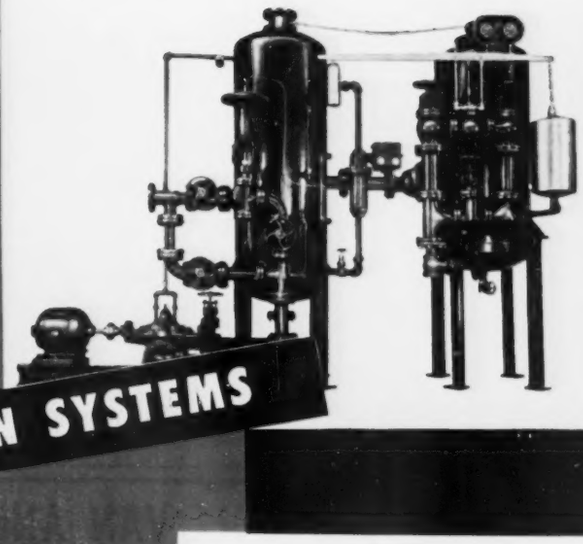
Basic facts outlining the importance of the forest resources of Georgia are contained in the first 1953 quarterly bulletin of the Industrial Department of Seaboard Air Line Railroad Co. The bulletin says Georgia's 25,000,000 acres of forestland are the state's "most valuable renewal resource" employing 166,000 Georgians, and returning $600,000,000 income.

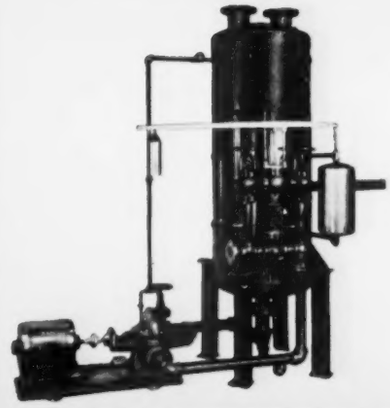
Georgia ranks first in the South in the production of pulpwood, and furnished 2,370,143 cords to the industry in 1951, according to the Seaboard bulletin. Of the forestlands in the state 95% are privately owned, with 70% being in holdings of less than 1,000 acres. More than 20,500,000 acres of Georgia woodland are under the jurisdiction of the state's forestry programs with organized fire protection.

FOR SMALLER MACHINES

TYPICAL FULTON SYSTEMS

FOR OLDER MACHINES





Here's the Fulton dryer drainage story and we'll tell it to you quick.

There are now Fulton Dryer Drainage Systems on all the latest machines—all paper machine builders specify Fulton. They are also going onto the smaller and older machines in increasing numbers.

Why! Because a Fulton system always pays off and no group of mill officials can afford the quality, tonnage and steam losses due to improper drying.

And so we urge you operators of smaller and older mills still staggering along without Fulton drainage to check with some of the operators that know it first hand—and do it soon. Also write for technical bulletin.

10% to 30% production increase.

Positive reaction in steam coats —even with tonnage gains.

Improved quality. Uniform drying. Less cockle or curl.

Moisture content control.

No over-drying.

Engineering survey-machine study. No obligation.

THE MIDWEST-FULTON MACHINE CO.

DAYTON, OHIO

Crossett Chip Supply

Crossett Paper Mills, Crossett, Ark., will receive chips from the company's nearby lumber mill according to plans now being carried into effect. The mill already buys chips from Southern Lumber Co., Warren, Ark.

Big Little Paper

The Appleton, Wis., *Post Crescent*, one of the most successful smaller town newspapers in the country, has a circulation of 32,000, though Appleton's population is only 35,000. It covers a wide radius outside the town and devotes much space to news from neighboring towns. It uses Great Lakes Paper Co. newsprint swapped from a Southern newspaper in trade for the Post Crescent's allotment from a Southern mill in which it has invested.

Big Expansion Planned

National Gypsum Co. is embarking on an $18,000,000 plant capital expansion during the next two years, Melvin H. Baker, National Gypsum board chairman recently announced. It will include both new construction and the acquisition of going concerns in fields. National Gypsum recently completed a new mill in Oklahoma.

Meyer's 50th Year

Louis Meyer, one of the Wisconsin brothers prominent in papermaking for many years, now a consultant living at Port Edwards, Wis., recalls that it was just 50 years ago the spring of 1953 that he first arrived on the Wisconsin River. He was for years paper mill superintendent at Nekoosa-Edwards Port Edwards mill. Born in Manitowoc, Wis., he started in Fox River mills.

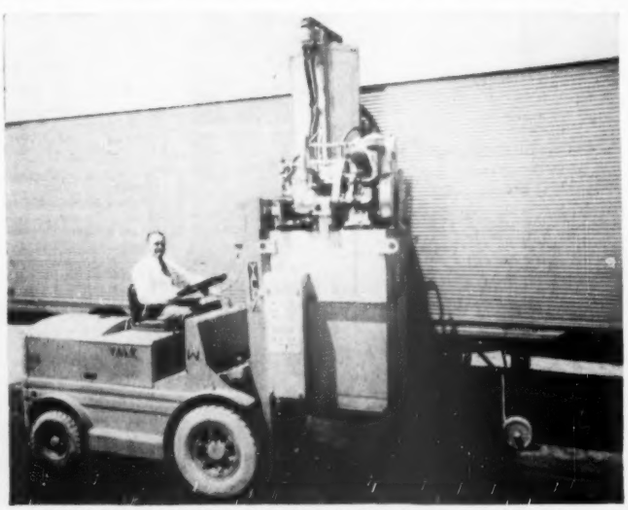
H. M. HARPER, President of The H. M. Harper Co., Morton Grove, Ill., manufacturers of Everlasting Fastenings, announces appointment of TOM STOTT (in picture) as Vice President. Mr. Stott joined the company in 1942, was appointed Gen. Sales Mgr. in 1950, and will continue to serve in that capacity.

New Records at Savannah

New all time production records at Union Bag & Paper Corp., Savannah, Ga.: Kraft pulp mill averaged 1,562 tons daily of slush pulp in March. The paper mill averaged 1,504 tons daily during the same month. The box plant made 5,388 tons of corrugated board, breaking a record that stood since 1950 of 5,090.

NEW "WILSON" MOVABLE VAN AND TRUCK WASHER

PATENT ALLOWED



NOW SAVING $7.88 IN LABOR COST, ON EACH VAN WASHED. The CONSOLIDATED PAPER COMPANY Of Monroe, Michigan, who purchased a WILSON WASHER in 1951, writes

"OUR EXPERIENCE WITH THE WILSON TRAILER WASHER WAS STARTED ON OCTOBER 26, 1951, AND UP TO DECEMBER 31, 1952, WE HAVE WASHED 2,499 TRAILERS.

"THE ORIGINAL SET OF FULLERGRIPT BRUSHES GAVE US 1,229 WASHES. THE SECOND SET OF BRUSHES GAVE US 1,267 WASHES. WE HAVE REPLACED ONE EBONITE HUB DUE TO STRIKING METAL BUMPER ON BACK OF TRAILER. THE ONLY OTHER REPAIR MADE ON THE WASHER WAS THE REPLACEMENT OF A BROKEN ROLLER THAT SUPPORTS THE BOOM.

"WE WANT TO INCLUDE THAT WE ARE FORTUNATE IN HAVING A CONSCIENTIOUS AND EFFICIENT OPERATOR.

"NOW, AS TO SAVINGS OVER OUR PREVIOUS HAND WASHING OF TRAILERS: WE FORMERLY WASHED TRAILERS EVERY SATURDAY FOR EIGHT HOURS WITH EIGHT MEN TURNING OUT TWENTY TRAILERS. THE COST WAS $172.16 PER WEEK, OR AN AVERAGE OF $8.60 PER TRAILER.

"WITH THE PRESENT WILSON WASHER, IN EIGHT HOURS WITH ONE MAN WE WASH TWENTY TRAILERS AT AN AVERAGE COST OF 72c PER TRAILER.

"THE TIME ON WASHING A TRAILER DEPENDS ON HOW DIRTY THEY ARE, NATURALLY. THE AVERAGE IS FROM THREE TO TEN MINUTES PER TRAILER AND FROM FIVE TO SEVEN TRAILERS PER TANK OF 250 GALLONS OF WATER.

"WE DO NOT USE A DETERGENT. SOME OF OUR TRAILERS HAVE BEEN WASHED AS MANY AS 55 TIMES IN THE PAST YEAR AND THE PAINT AND LETTERING HAVE NOT BEEN AFFECTED IN THE LEAST.

"WE REALIZE THAT THE REPEATED WASHING HAS SAVED US CONSIDERABLE IN TRAILER REPAIRS DUE TO THE ACCUMULATION OF SAND, CINDERS, AND CHLORIDES THAT HAVE BEEN WASHED OFF REPEATEDLY. IN OTHER WORDS, WE ARE VERY WELL SATISFIED.

"WE TRUST THAT THIS INFORMATION WILL BE OF VALUE TO YOU, AND WE WILL APPRECIATE YOUR STOPPING IN IF YOU ARE IN THIS VICINITY."

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ASK FOR BULLETIN NO. 84

CHICAGO DAILY NEWS BUILDING, CHICAGO 6, ILLINOIS

TO U.S. PAPER MANUFACTURER INTERESTED IN PRODUCING IN MEXICO,

is available the following:

An unlimited supply of water all the year round. Easy & economical facilities for producing hydraulically 2,000 H.P. 30,000 tons of sugar cane Bagasse per annum over six months. Land for factory, rented or for sale at purely nominal price. Unlimited supply of unskilled & relatively unspoiled labour.

A proportion of the capital required for the establishment of the factory could be subscribed locally. The site is approximately 20 miles from the State Capital of Veracruz, Mexico.

Enquiries to:
CHARLES P. DIXON
Calle Balderas No. 36. Office 502.
Mexico City.

WANTED: INDUSTRIAL ENGINEER. Prominent Eastern multi-plant pulp and paper manufacturer requires capable young graduate Industrial Engineer with about five years experience for position of Department Supervisor of newly created Standards Department. Responsibilities include operational and material utilization standards, operating budgets, standard costs, cost estimates on new products, analysis of operating results and special assignments. This position offers truly unlimited possibilities to a sound young man who can produce results. Salary, up to $8,500. Send complete resume of training and experience. Address Box 151, PULP & PAPER, 370 Lexington Ave., New York 17, New York.

WANTED: DISTRICT SALES OR FIELD SERVICE REPRESENTATION . . . Machinery and mechanical lines . . . Northwest resident, with mechanical background, demonstrated selling ability, administrative experience and established standing . . .
Can deliver intelligent personal coverage immediately, with wide acquaintanceship in pulp and paper, lumber and plywood, contracting and all major Pacific Northwest industries . . . Exclusive representation if needed, or can handle two or three allied lines. Reply Box 152, PULP & PAPER, 370 Lexington Ave., New York 17, N. Y.

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For paper mills, pulp mills and paper converting plants.

Serving employers seeking executives and executives seeking positions.

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Pusey's Harvard Move Leaves Institute Vacancy

Dr. Nathan M. Pusey automatically relinquishes his post as a trustee ex officio of the Institute of Paper Chemistry as a result of his resignation as president of Lawrence College, Appleton, Wis., to become the new president of Harvard University. He headed Lawrence for nine years. Is now 46 years old. The Puseys have three children, boys, 16 and 13 and a daughter, 11.

A new president of Lawrence had not been selected as this issue went to press.

NASH VACUUM PUMPS
are simple

One moving part. No valves, no pistons, no sliding vanes, no internal lubrication. This makes possible important operating advantages no other type pump offers.

Plus–

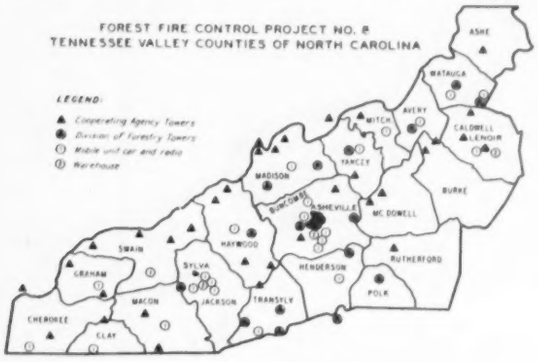
NASH ENGINEERING COMPANY
416 WILSON AVE., SO. NORWALK, CONN

HOW SOUTHERN STATE REDUCES FIRES

Demonstration that forest fire control on an adequate basis can drop annual losses to below the 0.25% accepted as standard risk basis for timber growing was effected in 15 North Carolina counties from July 1, 1947, to June 30, 1952. Jointly reported by F. H. Claridge (N.C.) State Forester, and TVA, was an annual drop loss to 0.22% from 1.6% of the previous five years. Lands included 1,688,000 privately owned acres and 1,021,840 acres of national forests, parks, etc., in rugged heavy precipitation watershed area for important stream sources. Total cost averaged 7¢ per acre year.

Cooperation was extended by Champion Paper & Fibre Co., The Mead Corp., American Enka Corp., Harris Clay Co., Draper Corp., other industrial forest owners. The area ranks high in merchantable timber.

Important factors of success included requirement of permits for brush burning (67,362 issued), 2840 meetings attended by 254,465 persons, full newspaper cooperation with 2904 articles published. Essential in control work were 2-way radios, tractors, trucks, road machinery, other tools. Road maintenance covered 97.3 miles; new road construction, 7.5 miles. Repairs to fire equipment covered 23,632 pieces.



Map showing fire control project in 15 North Carolina counties.

Alaska Juneau Mining Options Property for Mill

Alaska Juneau Gold Mining Co. discloses in its annual report that it has granted a short term conditional option on the company's power plant and other properties at Juneau, Alaska, for a projected $25,000,000 pulp and paper mill of 300 tons capacity.

Henry L. Gray, Seattle engineer, has been planning the project for years and holds the option in lieu of a substantial minority interest to be held by Alaska Juneau. This company's mine has been idle since the war, but it has been operating the power plant, selling power to Juneau.

Harris Hall & Co., Chicago, has indicated an interest in financing the pulp and paper mill, said Mr. Gray.

Hot water for pulp washing

uncontaminated . . . at the desired temperature

Recover heat from steam released in the digester blow tank with a Swenson Surface Condenser! Its operation is automatic and synchronized with blowing cycles. You'll get *clean* hot water at the desired temperature for pulp washing.

Let a Swenson Engineer help you arrange a condenser system to meet your specific needs!

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Proved Engineering for the Process Industries
SINCE 1889

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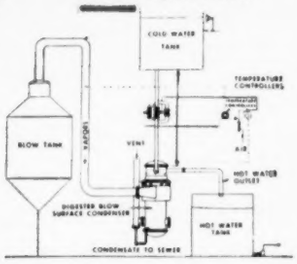
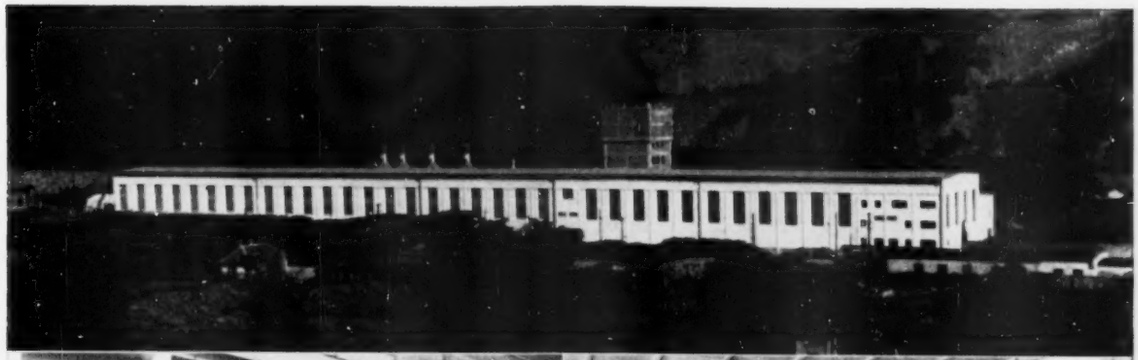
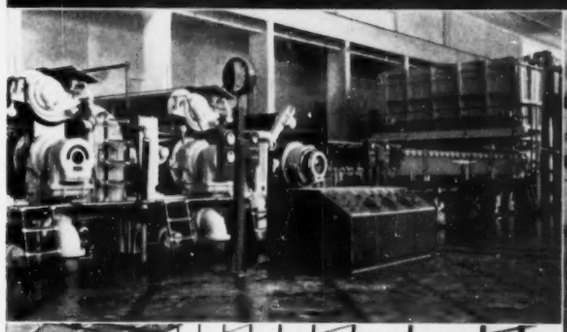
TALK WITH A SWENSON ENGINEER

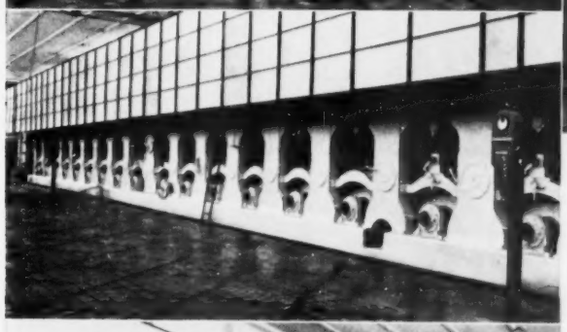
HE WILL RECOMMEND THE RIGHT EQUIPMENT

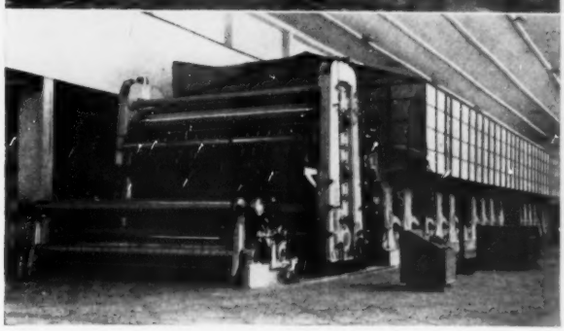


Flow diagram shows general arrangement of Blow Condenser System









This is the most recent of Bagley & Sewall productions, designed, built and installed for the Murztaler Holzstoff-und-Papier-Fabriks A. G. in the city of Bruck/Mur, Austria, one of Europe's finest and most modern paper mills.

This fourdrinier machine has a wire width of 226 inches and length of 100 feet. Outstanding in design features, from the remote control system to the many engineering innovations throughout the various machine sections, it is one of the most modern papermaking machines in the world, today. Another B & S paper machine designed for efficient and economical manufacture of paper.

International recognition and acceptance of Bagley & Sewall resourceful engineering and precision built papermaking machinery is evidenced by the many installations in leading mills throughout the world.

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PHOSPHOR BRONZE-MONEL-STAINLESS STEEL

AVAILABLE IN A BROAD RANGE OF CONSTRUCTIONS AND ALLOYS FOR CYLINDER FACES, SAVE-ALLS, DECKERS AND THICKENERS, FILTERS AND WASHERS

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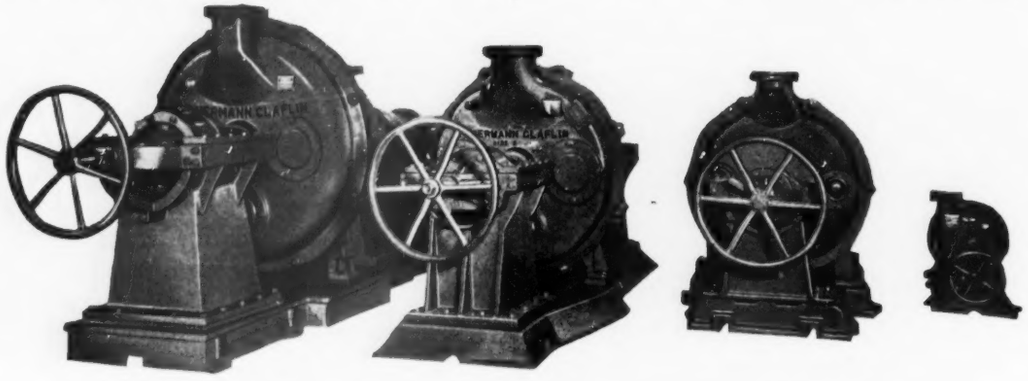
HERMANN *Improved* CLAFLIN



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EXCLUSIVE SALES AGENT: THE EMERSON MFG. CO., LAWRENCE, MASS.

THE HERMANN MANUFACTURING CO.

LANCASTER, OHIO

"OPEN HOUSE" WITH A BANG

12,000 VISITORS INSPIRE CAMAS TO OUTPUT RECORDS

TOP CROWN Z EXECUTIVES at the Camas Open House, one of biggest ever held in this industry. Left to right: **G. H. GALLAWAY**, Resident Manager at Camas; **J. D. ZELLERBACH**, President, from San Francisco, and **FRANK YOUNGMAN**, Vice President, Portland, Ore., with responsibilities over Northern mills.

ONE OF THE BIGGEST and most dramatic "open houses" in industry history was the three-day event, May 14-16, at the diversified Camas, Wash., pulp and paper operations of Crown Zellerbach Corp.

It was an open house with a bang. For, while over 12,000 visitors were being conducted through the plants by 225 employe-guides, the Camas mill smashed all its past records for paper production. It seemed as though the staff was inspired by the event which celebrated the mill's 70th anniversary as well as that of the thriving little city on the north bank of the Columbia.

On the first day, Camas made a record 819.5 tons. The second day, with 814.9 tons, also was well above the previous record of 788.8 (made Jan. 28 this year). No. 15 "all-purpose" Fourdrinier, newest of the machines and usually on milk bottle stock, hit 97.2 percent efficiency for the week and five others ran over 95 percent. The week's production of 5,410.5 tons also was a record. Sulfite pulp output reached 2,265 tons, kraft, 2,220 tons, about half of each bleached, and the bag factory made 32,799 bales, converting plant, 25,549 cases, napkin department, 9,151 cases, and waxed lunch roll, 3,024 cases.

Actually 11,559 visitors registered, but 12,300 packets of literature were handed out, indicating others were unregistered. At one time there were 30 some buses lined up around the mill! School kids from five counties totalled 4,659, and one little group from Wishkah, Wash., got up at 3 a.m. to get the only train to Camas. One school "marm" came in boots and overalls and was surprised she didn't need them! Visitors were registered from 29 states and India, Japan, Eire and Canada, indicating many were tourists.

There were 25 big signs around the mill on economic information. They told of the Camas $12,000,000 payroll, of the total of 12,621 C-Z employes and 17,192 stockholders and of its labor record of no work stoppages since 1933. There were many other signs giving product and machinery information. The first group through was an official party of mayors, legislators, county officials, etc., totalling 60.

President J. D. Zellerbach, who was made an honorary citizen of Camas, Vice President Frank Youngman, and G. H. Gallaway, resident manager at Camas, joined in high praise for the entire mill and open house committee for the "paint-up" and "clean-up" jobs done, and the smooth, efficient conduct of the tours.

Harold F. Carpenter, then industrial and community relations supervisor, but since promoted to resident manager at Port Angeles, was general chairman. On his committee were Ray A. Dupuis, assistant resident manager, Don Platt, J. P. Phillips, Vera Berney, R. G. Mispley, J. F. Robertson, W. T. Sampson, Margaret Ann McGirr, R. B. Haight, T. W. Leedham, J. W. Anderson, P. V. Millard, and S. R. Runyan.

THIS MAINTENANCE EXHIBIT—one of many similar ones—told how 15 percent of employes worked on maintenance in the Camas Mill.

THIS UNUSUAL EXHIBIT was an attempt by the Camas staff to show, in approximately accurate proportions, the amounts and kinds of paper used in one year by an average inhabitant of the United States. Average per capita consumption was 390 lbs. in 1952 and here are 390 lbs. of various paper products. The Camas mill is reputed to make over 700 kinds of paper itself!

300 YEARS AGO A MAN MADE 100 LBS. OF PAPER PER 12 HOUR DAY USING HAND EQUIPMENT.... TODAY WITH OUR MODERN MACHINES A MAN PRODUCES 20000 LBS. PER 8 HOUR DAY...

ANOTHER INSTRUCTIVE SIGN AT CAMAS OPEN HOUSE. It says "300 years ago, a man made 100 lbs. of paper per 12 hour day, using hand equipment. Today, with our modern machines, a man produces 20,000 lbs. per 8-hour day." **FRANK SILL**, who works in the Camas office, drew this picture of the colonial days papermaker. He has drawn literally hundreds of sparkling cartoons for Camas mill signs—many of them for the Open House.

MRS. JULIA MARCHBANK (left), of Vancouver, Wash., now 87 years old, worked in the Camas mill office back in 1885. She came to its Open House with her grandson, **ROBERT MARCHBANK** (right), now an employe in the kraft mill.

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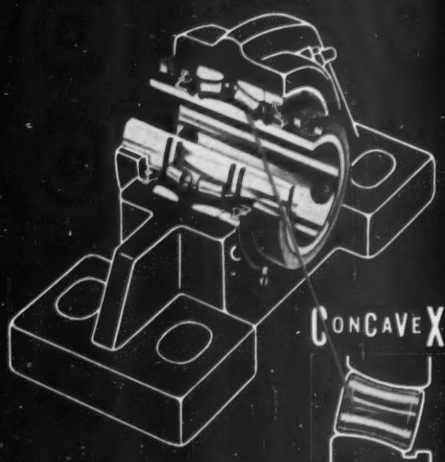
AND STILL THE FINEST BEARING OF ITS KIND



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Hamilton Felts

Criticism of Paley Report

Continued from page 66

in Canada. And then he suggested that perhaps Canada and the U.S. should approach the problem of forest conservation and utilization on a continental, instead of national, basis.

"Perhaps," said Mr. Fowler, "we should be conserving certain tree species to meet future demands for products for which they are specially suited. Perhaps we should be making products from other available species, and making them at different places than we do today."

In other words, according to the interpretation placed on Mr. Fowler's remarks in Canada, he favored an extension of the growing trend towards integration and utilization to the continental field with wood supplies flowing into the channels where they could be utilized most economically. So far as the continent-wide inventory of forest resources was concerned, it was assumed that the survey would be on national levels, with the resulting data correlated.

Mr. Fowler has expressed the view that possibly the pressures for conservation and efficient utilization of the forests should compel the U.S. and Canada to reexamine the tariff policies of the two countries.

Mr. Fowler told PULP & PAPER that he could not amplify his reference to the tariffs. "All I attempted to say was that I thought a study of this whole subject would be valuable from the standpoint of conservation and efficient utilization of continental forest resources," stated Mr. Fowler. "I have no formula or program to suggest other than that this whole subject should receive some objective study."

A DOUBLE EXPOSURE

W. D. VINCENT (left), General Electric Co.'s specialist in the Pacific Northwest pulp and paper field, working out of Seattle, and DON PLATT, Crown Zellerbach's Project Engineer at Camas, Wash., are seen twice here (in mirror, too) as they sat in on a recent discussion with other Pacific Coast engineers regarding the future of engineering meetings in that region.

Manhattan Rubber's New Plant at Neenah

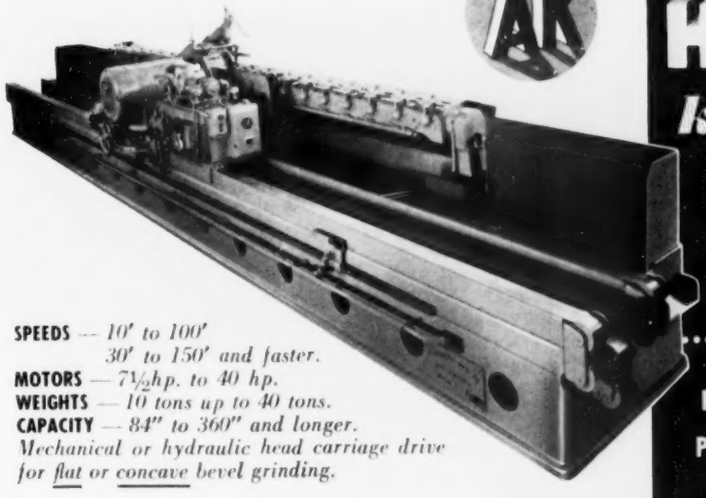
Manhattan Rubber Mfg. Co., subsidiary of Raybestos Manhattan Inc., Passaic, N.J., opened its modern and new rubber roll covering single-story plant on Cecil St. in Neenah, Wis., on May 1. It is an example of straight line production modern materials handling and industrial precision and efficiency. Manhattan Rubber has been located at Neenah for 20 years.

Just one year old is the similar plant built at Crawfordsville, Ind. Another large Manhattan roll covering plant is at North Charleston, S.C., to serve the South.

IMPROVED PAPER BOTTLE CARRIER

MUCH DISCUSSED EVENT in paperboard world of past year is this new 24-bottle carrier. Several mills are making this larger type, staunchly stitched carrier. GAYLORD CONTAINER CORP. was a pioneer, and developed the water resistant kraft board used. There will be no snagging of this gal's nylons with this paper carrier—"BEV-TOTE"—which cuts costs of wooden carriers by two-thirds, and trucks can load 28 more of these; semi-trailers, 200 more. Center handle is sturdy; carrier weighs 4 lbs. less than wood; is good for 50 to 75 trips. Bottler assembles it with stitching machine.

MODEL AK



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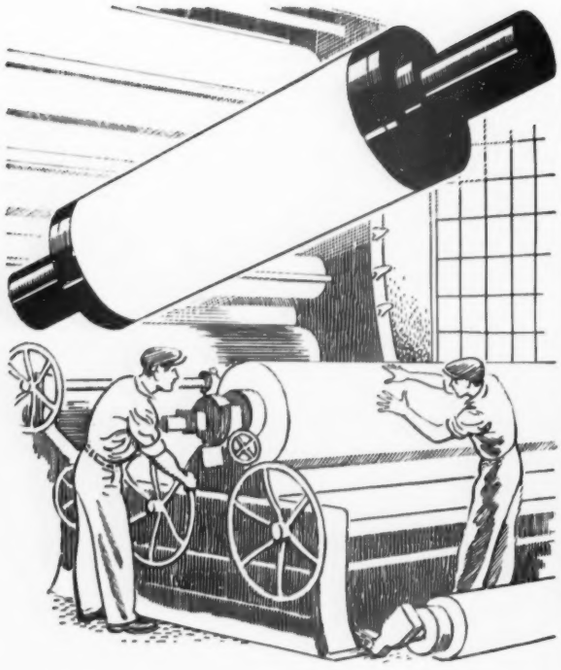

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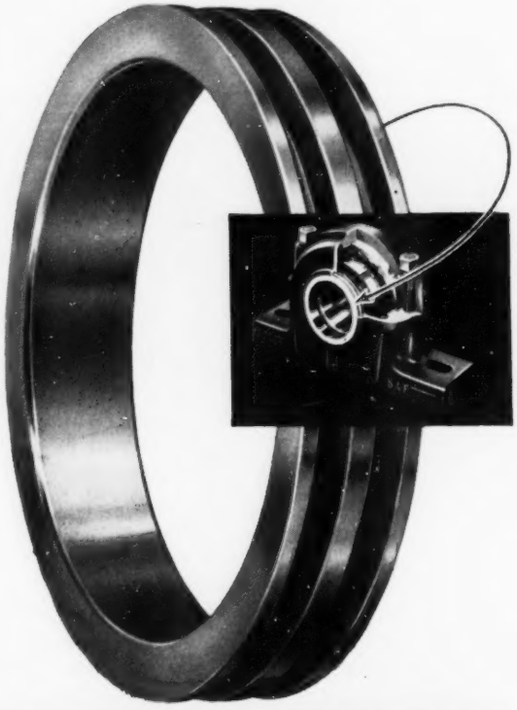

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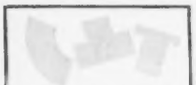

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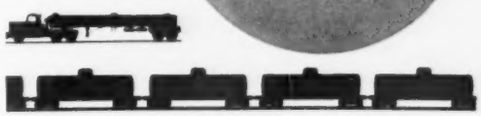

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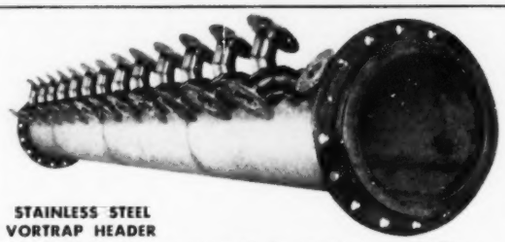

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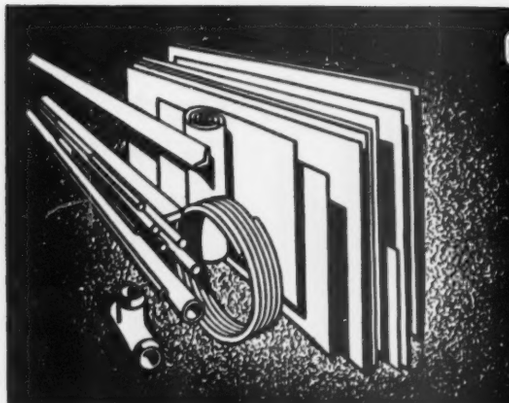

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